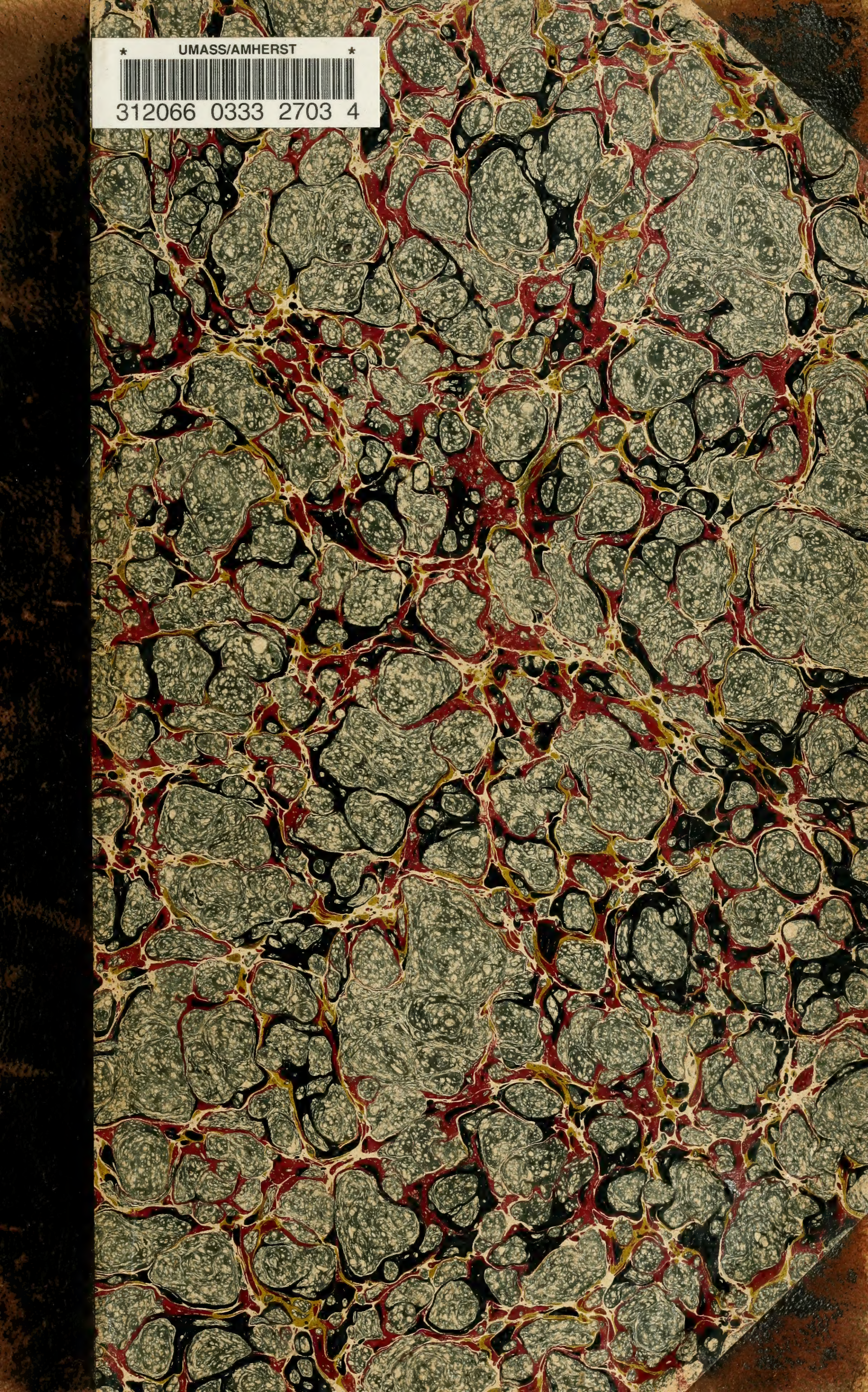

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ENTOMOLOGY

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BEES, Queens, Hives, Given Comb Foundation, Apiarian Supplies, German Carp, Small-fruit Plants. Send for catalogue free. E. T. Flanagan, Belleville, Ills. 1-24db.

A NEW BOOK ON CABBAGE AND CELERY. Full of new ideas and valuable information. Although actually worth many dollars to growers, a copy will be mailed free to any person who will send two stamps and the address of three or more extensive Cabbage, Cauliflower, or Celery growers.

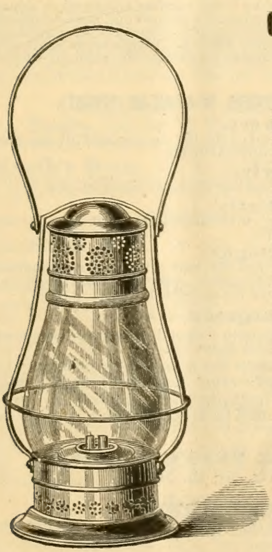
Address **ISAAC F. TILLINGHAST.**
La Plume, Lack'a Co., Pa.

DADANT'S FOUNDATION FACTORY, WHOLESALE and RETAIL. See advertisement in another column. 3tfbd

500,000 Linn and Buckeye V-groove one-piece sections, at $2.50 to $3 00 per M. Bee-hives and apiarian supplies in general. We have enlarged our factory, and added new machinery. For price list, address

J. B. MURRAY, Ada, Ohio.

COMBINATION LANTERN.



The adjoining cut shows a neat and handy lantern for use about the home. It has three different burners—one for petroleum, one for lard oil, and one for a common tallow candle. It is easily taken apart to clean; and to light, the oil fount is taken out of the bottom by pressing on a couple of springs with the thumb and finger. We can not warrant this lantern not to blow out in a wind. The usual price is 50c. We offer them for 40c by freight or express with other goods. They are not mailable.

A. I. ROOT.
Medina, O.

LITHOGRAPH LABELS IN 12 COLORS, AT $2.00 PER 1000.

When Mr. James Abbott, of London, Eng., was with us a year ago, he had samples of a very neat lithograph label, oblong in shape, measuring 2⅛x2⅝. We mentioned them at the time in GLEANINGS, agreeing to send samples as soon as we received them. Well, they have just come to hand, although we ordered 50,000 over a year ago. They are about the nicest labels we ever saw for glass tumblers, pails, and small packages of honey. We will mail a sample inclosed in our label catalogue, free on application, and will furnish them postpaid at the following prices: 5 cts. for 10; 40 cts. for 100: $1.25 for 500; $2.00 for 1000. A. I. ROOT, Medina, O.

ONE OF OUR $25 SAW-TABLES FOR $15.

This table was sold to a customer in Fair Haven, Vt., two or three years ago. He says his supplies have nearly all been made on another table, and this one has scarcely been used at all. He says: "It is in perfect running order, and the saws are in good shape, having been filed only twice, by an experienced hand. The machine is as good as new, except a few scratches." Of course, this table has not our late improvements, such as the screw-and-chain attachment and miter-board, shown in our catalogue, but it is a big bargain to some one at $15.00. A. I. ROOT, Medina, O.

NEW AND SECOND-HAND FOUNDATION-MILLS AT REDUCED RATES.

We have on hand the following fdn. mills that we desire to dispose of; and to do so we quote these special prices: One 14-inch mill, made about 2 years ago, but has never been used. This mill makes fdn. with the round, or improved cell. It is as good a mill as we could make a year ago; but with our new machine for cutting the rolls we do much better work now, hence we offer this mill at the very low figure of $25.00. Regular price $40.00.

One 12-inch mill, second-hand; has been used about one season, but is in good order. We will sell for $15.00. Regular price $30.00.

One 10-inch mill, made about 3 years ago; has been used almost none; was returned to us because our customer did not have enough use for it. Regular price $20.00. Will sell for $15.00.

One 6-inch mill in same condition, and from same man as above 10-inch mill. Regular price $13.50. We will sell for $10.00.

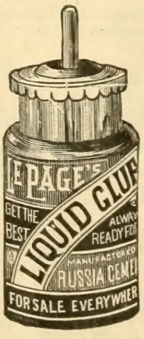
One 6-inch drone-mill, new; never been used; just right for making thin drone fdn. for section boxes. Regular price $15.00. We will sell it for $13.00.

One 6-inch Olm mill, made 6 or 7 years ago; has been used a little, but will do nicely for one who wants to make his own fdn. We will sell it for $8.00.

One 6-inch Pelham mill. A new machine, never been used. We took it in exchange for one of our make. Will sell it for $8.00.

A. I. ROOT, Medina, O.

LEPAGE'S LIQUID GLUE.



Few words of praise are necessary for this excellent article, so widely known and advertised. It is one of the best of liquid glues. Always ready for use. Mends every thing. We have 4 different-sized packages.

Glass bottle like the adjoining cut for 10 cts.; 75 cts. for 10; $7.00 per 100. Half-gill tin cans with screw cap, and brush fastened to inside of cap, price 15 cts. each; $1.10 for 10; $10.50 per 100. This latter can be sent by mail for 10c. extra for postage and packing.

Gill tin can with brush, 20 cts.; 10 for $1.50; 100 for $14.00; ½-pint tin cans, no brush, 25 cts.; $2.20 for 10; $21.00 per 100.

LePage's MUCILAGE, in large bottles, with a nice enamel-handle brush, at 10 cts. each; 75 cts. for 10; $7.00 per 100. This is the best mucilage made, and will do nicely in many cases for glue, although it is pretty thin to be used as glue.

A. I. ROOT, Medina, O.

Seeds for the Garden and Greenhouse for 1888.

As a number of the friends in the South are now sending in their orders for seeds, it reminds us that it is time to indicate our preferences, and to let you know what we feel like advising and offering for sale the coming year.

PRICE 5 CTS. PER PAPER; 10 PAPERS, 40 CTS.; 100 PAPERS, $3.50.

Seeds of new or rare vegetables and novelties, we include at the uniform price of 5 cents per package; but, of course, we are obliged to put a smaller number of seeds into such packages. This will be noticed with the White-Plume Celery and Snowball Cauliflower, etc. Now, these 5-cent papers are all sent by mail postpaid; but when you order seeds BY THE OUNCE OR POUND, *you must pay 2c extra for postage and packing on each and every ounce, and 18c extra for postage and packing on each and every pound of seeds ordered. You will notice from this, that the* FIVE-CENT PACKETS, POSTPAID BY MAIL, *never contain a* FULL OUNCE *of any thing.*

ASPARAGUS.

Conover's Colossal. Oz. 5c; lb. 35c.
There are said to be improvements upon this variety, but they have not been fully tested. No one will lose any thing by planting this old standard.

BEANS.

Landreth's First in the Market. Pt. 20c; pk. $3.00. The earliest shell beans.

Dwarf German Wax, or Butter Beans. Pt. 10c; pk. $1.50. The earliest snap-short variety.

Golden Wax. Pt. 10c; pk. $1.50.
A staple snap-short bean.

White Kidney, Large. Pt. 10c; pk. $1.00.
One of the best to use shelled, when green or ripe. We sell bushels of these at 15c a pint, shelled green. We market them in new pint strawberry-boxes.

POLE BEANS.

Southern Prolific. Pt. 10c; pk. $1.50.
The best snap-short pole bean, maturing in 70 days

Large Lima. Pt. 15c; pk. $2 00.
We get 20c per pint for these, when green, shelled. See White Kidney bean above.

The above beans will be furnished in 5-cent packages; but where they are to go by mail, postpaid, of course the above packages will have to be quite small. If wanted by mail, add 15c per pint for postage.

BEETS.

Eclipse. Oz. 5c; lb. 60c.
This gave us the best satisfaction last season of any thing we ever raised in the way of beets. They are a very quick grower, of excellent quality, and the appearance of the bright smooth scarlet bulbs is fully equal to any thing that has been pictured in the colored plates of our catalogues. In order to get a fancy price for them, start them in the greenhouse, and transplant when of the size of peas, or a little larger. They bear transplanting well, and are exceedingly hardy.

Philadelphia Turnip. Oz. 5c; lb. 50c.
This is a little later and larger than the above, and is a novelty because of its alternate rings of dark and light pink.

Lane's Improved. Oz. 5c; lb. 40c.
The best variety for stock-feeding. It showed a larger per cent of sugar at the Experiment Station than any other analyzed. It is so sweet, that when small, they are nice to eat raw.

Long Red Mangel. Oz. 5c; lb. 30c.
Yields well, but not so sweet as Lane's improved.

CABBAGE.

Select, Very Early Jersey Wakefield. Oz. 25c; lb. $3.00.
Our cabbage seed this year is raised by Francis Brill. At the Experimental College Farm, at Columbus, O., they give his cabbage seed the preference over that raised by any other seedsman, and they have tested nearly all of them. They all say that the Early Jersey Wakefield, of their best selected strain, is fully as early as any other cabbage known, and greatly superior in quality. We have sold single heads at retail at 30c each, raised from plants started in the greenhouse in February.

Henderson's Early Summer. Oz. 25c; lb. $3.00.
This comes next to the Jersey Wakefield; and although it is an early cabbage, under very favorable conditions it produces large heads of most excellent quality.

Winningstadt. Oz. 10c; lb. $1.50.
Much like the Jersey Wakefield, but later and larger. The heads are round, and some of them are so hard as to seem almost like bullets. Our customers of last season greatly preferred these and Henderson's Early Summer cabbage to the later flat cabbages.

Louisville Drumhead. Oz. 15c; lb. $2.00.
One of the most uniform and surest-heading sorts tried at the Ohio Experiment Station. It is a little earlier than Flat Dutch, hence may be planted later; just the kind to plant after early crops.

Flat Dutch. Oz. 10c; lb. $1.50.
This is a standard late cabbage, for winter.

Perfection Drumhead Savoy. Oz. 10c; lb. $1.50.
The Savoy cabbage is handsome in appearance, and richer and finer in quality, than any of the other varieties. In taste it nearly approaches the cauliflower.

Large Red Drumhead. Oz. 10c; lb. $1.50.
This is a red cabbage for pickling. The bright red, by way of contrast, will make a load or lot of cabbages attract attention, and there is always more or less demand for red cabbage for pickles.

CARROTS.

Orange Danvers, Half-Long. Oz. 5c; lb. 60c.
Yields well, and is easy to dig. The best sort known, by all odds.

CAULIFLOWER.

Henderson's Early Snowball. ¼ oz. $1.00; oz. $3.00.
Nice specimens of early cauliflower often bring extravagant prices, and it pays well to start them in the greenhouse, and use hand-glasses to forward them before the hot weather comes on.

CELERY.

Henderson's White Plume. ¼ oz. 10c; oz. 35.
We place this at the head of the list, and especially for early celery. During the past season we had fine stalks on the market in July, and it sold readily at 10c each. We are planning to have celery this year in the market in the month of June. The seed was started in the greenhouse about the middle of December. On account of its self-bleaching qualities it is better fitted for early celery than any other.

Golden Dwarf. Oz. 20c; lb. $2.50.
One of the standard sorts for a later crop. The golden tint of the head stalks makes it a very handsome vegetable.

Boston Market. Oz. 20c; lb. $2.50.
An old standard variety in and around Boston, and raised largely throughout the land.

Major Clark's Pink. Oz. 40c; lb. $5.00.
While the White Plume is the earliest and finest in appearance, we regard the above as the richest and most toothsome of all the celeries. It also, under favorable circumstances, makes exceedingly rapid growth. Plants set in September, the past season, made stalks weighing 2 lbs. each, by the middle of November.

CORN (FOR TABLE USE).

Ford's Early Sweet.
We put this at the head of the list on account of its excellent quality and exceeding earliness.

Cory's Extra Early.
Probably a few days earlier than any other known.

Crosby's Extra Early.
This is a great yielder, with soil suitable, although it comes a little later than Ford's.

Late Mammoth Sugar.
This is excellent in quality, and gives ears of mammoth size, and is a wonderful yielder. Our trade has been very large in this kind of corn for eight or ten years past.

Livingston's Evergreen.
Earlier than the Mammoth. Excellent as a market variety, also for drying and for home use.

Corn we sell at 5 cents for a half-pint package; but at this price purchasers must pay the postage, which is 7 cents for each half-pint. If wanted in larger quantities the price will be $1.00 per peck, or $3.50 per bushel.

CRESS, OR PEPPER GRASS.

Extra Curled. Oz. 5c; lb. 50c.

CUCUMBER.

Early Frame. Oz. 5c; lb. 50c.
The earliest cucumber.

Rawson's Improved Early White Spine. Oz. 30c; lb. $3.00.

This is the kind he uses for raising in his greenhouse, and the cucumbers bring 50 to 75 cents each, even where he raises them by the thousands. Fine specimens are wonderfully handsome, and taking, and they sometimes grow to a great size without getting yellow.

Short Prolific Pickle. Oz. 10c; lb. $1.00.

This is is the kind generally used for raising pickles for market.

KOHLRABI.

White Vienna. Oz. 15c; lb. $1.50.

This is a quick-growing vegetable, half way between turnip and cabbage. If the plants are started in the greenhouse, the vegetable may be put on the market at the same time with the very earliest cabbages; and where people once get a taste of it, it is pretty sure to meet with a rapid sale at good prices.

LETTUCE.

Landreth's Forcing. Oz. 40c; lb. $5.00.

Excellent for hot-beds and cold-frames; exceedingly early. The heads are small, and may be sent to the table in their entire form, on the root.

Boston Market. Oz. 10c; lb. $1.00.

The best variety for greenhouse culture, as the heads are small, but compact and handsome.

Cincinnati Market. Per oz., 40c; per lb., $5.00.

This is a large white lettuce, raised extensively by the market-gardeners about Cincinnati. It does not head, but makes a bunch of large white crisp leaves. In many places it brings a better price than any other lettuce, especially as it makes its appearance in February.

Bloomsdale Early Summer. Oz. 10c; lb. $1.50.

Second early; sometimes called, by the Southern friends, "Creole."

Henderson's New York. Oz. 25c; lb. $3.00.

One of the largest and most beautiful varieties of lettuce known. When grown to perfection on good soil, the inside of the head is white, like a cabbage, and wonderfully crisp and refreshing.

Deacon Lettuce. Oz. 10c; lb. $1.50.

The variety is highly recommended by the Ohio Experimental Station, and so hardy that we have had good heads of it growing in the open ground as late as the middle of November.

Hanson. Oz. 10c; lb. $1.00.

An old standard variety, producing heads that sometimes weigh as much as 2 lbs.

Brown Dutch. Oz. 10; lb. $1.50.

A variety that always attracts attention, and always sells on account of the red or bronze colors of the greater part of its foliage. It is a very old variety, and the sight of it often finds a purchaser, because it reminds them so vividly of the days of childhood out on the old farm.

MELONS, MUSK.

Extra Early Citron. Oz. 10c; lb. $1.00.

Always profitable because of its extreme earliness.

Casaba, or Persian Muskmelon. Oz. 5 cts.; lb. 60c.

A standard large variety.

Pine Apple. Oz. 5c; lb. 60.

Excellent in quality, and only medium in size.

Banana. Oz. 5c; lb. 75c.

I consider this one of the best muskmelons it has been my fortune to taste, judging from specimens we had last season. They are long like a rail, or like a banana, if you choose; but the color is strikingly like a banana, and, what is more wonderful still, it has an odor also like the banana.

MELONS, WATER.

Extra Early. Oz. 5c; lb. 60c.

The quality is very good, but the size is not very large.

Landreth's Boss. Oz. 5c; lb. 60.

A melon that seems to combine more of the good qualities for a large late watermelon than any other.

ONION.

Extra Early Red. Oz. 15c; lb. $2.00.

Medium size, red, and an excellent keeper.

Silverskin, or White. Oz. 25c; lb. $3.50.

A standard variety for pickles, or for handsome bunch onions. Better flavored than the dark-skinned.

Yellow Danvers. Oz. 20c; lb. $2.50.

A standard yellow variety. The best of all to grow from seed. It makes a wonderful difference, however, how the seed is grown. Some strains will give nearly double the crop that others will.

ONION SETS.

We have those of Yellow Danvers and Silverskin.

Prices, 10c per pint; $1.50 per peck, or $5.00 per bushel. Large-size sets (often used for pickles), one-half the above prices.

PARSNIP.

Bloomsdale. Oz. 5c; lb. 40c; 10 lbs., $3.00.

This is the only kind we have, but we consider it equal to any.

PARSLEY.

Fine Curled or Double. Oz. 5c; lb. 75c.

PEAS.

Landreth's Extra Early. ½ pt. 5c; pk. $1.50.

We consider this equal to any for the first peas of the season. The same as the First of All, First and Best, and other extra earlies. It yields its crop in a very short time. Not equal in quality to the American Wonder.

American Wonder. ½ pt. 5c; pk. $1.50.

This is a cross between the Champion and the Little Gem. The vine grows from 6 to 8 inches high. It is the first to ripen among the green wrinkled sorts. On account of its dwarf habits it can be grown very easily under glass.

Stratagem. Pt. 30c; pk. $3.00.

This has made its way rapidly in public favor. It is not only of rare excellence in quality, but the pods and peas are so large and fine looking they call attention at once from any thing else in the market. It has given us excellent satisfaction.

Champion of England. ½ pt. 5c; pk. $1.00; bushel, $3.50.

So well known as to need no recommend here.

Marrowfat. ½ pt. 5c; pk. $1.00; bu. $3.50.

One of the most desirable and well-known late sorts.

Peas by mail will be at same rate of beans for postage.

PEPPERS.

Spanish Pepper. Oz. 25c.; lb. $3.00.

A new variety, so large that the natives of warm climates slice them up and fry, as an article of food.

Bullnose. Oz. 25c; lb. $3.00.

A larger variety than the above, but in every other respect the same.

Cayenne Pepper Oz. 25c; lb. $3.00.

Much called for, for seasoning soups, pickles, etc.

RADISHES.

White-tipped Scarlet Turnip. Oz. 5c; lb. 60c

A fancy variety of the scarlet bulb with white bottom; very showy.

Scarlet Turnip-rooted. Oz. 5c.; lb. 60c.

Larger and later than the preceding.

Lady Finger. Oz. 10c.; lb. $1.00.

One of the standard long radishes. Sometimes it grows as large as a parsnip, and yet is of excellent quality.

Becker's Chartier Radish. Oz. 10c.; lb. $1.50.

A novelty, and one that has given us the greatest satisfaction; of rapid growth and good size, both at the bottom and top. In favorable soil it will grow to a large size, and still be excellent in quality. The Chartier radish has been to us an acquisition during the past year. They are remarkably certain to make a good bulb.

SALSIFY, OR OYSTER PLANT.

A vegetable that is sure to be called for, where it is once introduced. Oz. 10c.; lb. $1.50.

SPINACH.

Bloomsdale Extra Curled. Oz. 5c; lb. 50c.

It combines as many of the good qualities as any other.

SQUASH.

SUMMER VARIETIES.

Early White Bush, or Patty Pan. Oz. 5c.; lb. 60c.

Not surpassed by the Golden Summer Crookneck. One of the old staples.

Golden Summer Crookneck. Oz. 5c; lb. 50c.

The standard summer squash.

WINTER VARIETIES.

Perfect Gem. Oz. 5c; lb. 50c.

A round squash, about 6 inches in diameter. The quality is excellent, and it will keep till spring.

Hubbard. Oz. 10c; lb. 60c.

Too well known to need comment.

Boston Marrow. Oz. 5c; lb. 75c.

An old standard staple, especially in and around Boston.

TOMATO.

Mikado. Oz. 25c; lb. $3.00.

This tomato is so distinct from the ordinary sorts that it has a different-shaped foliage that can be recognized at once. The tomatoes are of immense size, and the greater part of them smooth; besides, they are about as early as any thing we have. Some of the first last season sold at 8 cents apiece, and it does not take many such to fill a basket.

Acme. Oz. 20c; lb. $2.00c.

Too well known to need comment.

Trophy. Oz. 20c; $2.50.

A companion to the Acme.

Livingston's Beauty. Oz. 25c; lb. $3.00.

This is a production of the same Livingston who brought out the Acme, Trophy, Favorite, and Perfection; but he pronounces this superior to them all. They are better shape, and smoother, than the Mikado, but not so large.

Pear-Shaped Tomatoes. Oz. 20c; $3.00.
These are handsome for pickles and preserves. We have them of two colors—red and yellow. They are immense bearers, and of good quality.

TURNIP.

Early Bloomsdale Red Top. Oz. 5c; lb. 60c.
One of the best for the first turnip in the market.

White Egg. Oz. 5c; lb. 50c.
Very showy and handsome, as well as quite early. Last season they sold readily for a dollar a bushel in our market as fast as we could get hold of them.

Yellow Aberdeen. Oz. 5c; lb. 50c.
We consider this the best table turnip grown. When cocked it is so yellow that it will sometimes be mistaken for squash.

Purple-top White-globe Turnip. Oz. 5 c.; lb. 50 c.

This turnip, during the past extremely difficult season to raise any kind of turnip, gave us the best results of any thing we tried; and although the crop was not very large, the quality seems to be unusually fine for table use, especially when they are about as large as fair-sized apples. We have been selling them all the fall for a dollar a bushel; and to-day, Dec. 28, we are just closing out our last bushel of them, and we could sell a good many more at the above price if we had them. They probably grow as quick as any turnip known, and are very handsome. When washed they are almost as white as an egg, with a beautiful purple around the top. They are smooth and round.

Bloomsdale Swede. Oz. 5c; lb. 50c.
Perhaps the best of the Rutabaga varieties.

A. I. ROOT, Medina. O.

HONEY COLUMN.

CITY MARKETS.

NEW YORK.—*Honey.*—For the past few weeks the demand for honey has slackened off to some extent, as it generally does at this time of the year. In order to make sales now, we are obliged to shade prices slightly. About the middle of January we expect the demand to be more active again, at firmer prices. F. G. STROHMEYER & CO.,
Dec. 22. 122 Water St., N. Y.

PHILADELPHIA.—*Honey.*—We quote: 1-lb. sections, white, 15@16c; dark, and 2-lb. white, 10@14; strained, 8@10c. PANCOAST & GRIFFITHS,
Dec. 22. 122 Dock St., Philadelphia, Pa.

CINCINNATI.—*Honey.*—There is a quiet but fair demand for honey of all kinds. Extracted honey brings 4@9c on arrival; demand exceeds the arrivals. The demand for comb honey is rather tame. It brings 16@20c for best, in the jobbing way. Demand is good for beeswax, which brings 20@22c for good to choice yellow on arrival.
CHAS. F. MUTH & SON,
Dec. 27. Cincinnati, O.

KANSAS CITY.—*Honey.*—The demand for 1-lb. sections is good; very little on the market. 1-lb. sections, white, 20@22c; dark, 15@17; 2 lbs., white, 18c; dark, 15@16; extracted, white, 6½@7; dark, 5@6.
HAMBLIN & BEARSS,
Dec. 22. 514 Walnut St., Kansas City, Mo.

BOSTON. — *Honey.* — Fancy one-pound comb. 18@20c; two-pound comb, 17@18c. Extracted, 7@8c, Sales are slow. BLAKE & RIPLEY,
Dec. 22. 57 Chatham St., Boston, Mass.

ST. LOUIS.—*Honey.*—We quote choice comb 18@20c; latter is for choice white clover in good condition, and in 1-lb. sections. Strained, in bbls., 5@6 cts. Extra fancy, of bright color and in No. 1 packages, ¼ cent advance on above. Extracted, in bbls., 6¼@7c; in cans, 7¼@8c. *Beeswax*, 20c for prime.
Market very firm at above prices.
Dec. 22. D. G. TUTT & CO.,
206 N. Commercial St., St. Louis, Mo.

NEW YORK.—*Honey.*—The past two weeks the honey market has been quite dull. We attribute the inactivity to the continued warm weather. We quote as follows: Fancy white, 1-lb. sections, 16@19; 2 lbs., 14@16; buckwheat, 2 lb. sections, 10@11; 1 lb., 11@12. Off grades, 1 and 2c per lb. less. Extracted, white, 8@9. *Beeswax*, 22@23.
MCCAUL & HILDRETH BROS.,
Dec. 20. 28 & 38 West Broadway, N. Y.

COLUMBUS. — *Honey.*—Fancy white 1-lb. sections, 18@20c. Off grades not in demand; extracted, 10@12c. The honey-market is very dull; too high prices, and large lots are being offered. To increase the demand we shall be compelled to lower prices.
EARLE CLICKENGER,
Dec. 22. 117 South 4th St., Columbus, Ohio.

ALBANY.—*Honey.*—Market quiet, and steady in price. Stocke of comb honey are light. We don't look for much change in prices. Extracted, slow sale, prices nominal. We quote comb, clover, white, 14@18c; mixed, 12@13; buckwheat, 10@12.
Consignments solicited. H. R. WRIGHT,
Dec. 24. 328 Broadway, Albany, N. Y.

NEW YORK.—*Honey.*—Honey is moving rather slow, especially off goods. *Beeswax* is selling at 21 22c. THURBER, WHYLAND & CO.,
Dec. 22. New York City.

ST. LOUIS.—*Honey.*—We quote you choice white-clover comb honey, scarce and nominal, 17@20c, as to size of section and package. White sage, comb, plentiful and dull, as to size of section, at 14@18c. Extracted honey, white clover, nominal, in bbls., 6@6½; cans, 7½@8½; white sage, cans, 7@8. Southern. bbls., 4@5½, as to quality. *Beeswax*, bright, 19½@20; dark, 14@15. W. B. WESTCOTT & CO.,
Dec. 24. St. Louis, Mo.

CHICAGO.—*Honey.*—Very little demand for honey, and receipts are quite heavy for this season of the year. Prices are being shaded, to effect sales, which are very few and in a small way.
R. A. BURNETT,
Dec. 21. 161 So. Water St., Chicago, Ill.

DETROIT.—*Honey.*—Honey has advanced since last quotations. Best white, in 1-lb. sections, 18@20c, and good demand, as there is much less in commission houses. Extracted, 10@11c. *Beeswax*, 21@23.
Bell Branch, Mich., Dec. 22. M. H. HUNT.

FOR SALE.—1000 lbs. of white honey, for 17c per lb., 30 lbs. in a crate.
NELSON DEWEY, Tecumseh, Mich.

FOR SALE.—About one ton of extracted buckwheat honey, in kegs holding about 160 lbs. each; also two kegs of white-clover honey. Send for prices. W. D. WRIGHT,
Knowersville, Albany Co., N. Y.

FOR SALE.—A few hundred pounds of comb honey, in crates that will weigh from 20 to 28 lbs., or thereabouts; very nice for this season.
C. S. WOLCOTT, St. Johns, Clinton Co., Mich.

FOR SALE.—Eight cans, containing 60 lbs. each, of basswood honey, for 9c per lb. It is well ripened.
B. B. WESLEY, Lagrange, Lorain Co., O.

- FOR SALE. -

3½-horse-power upright Engine and Boiler, with 3 pulleys, 2 belts, and 16-foot shaft. In use only two seasons. Almost as good as new, with valve-cock, steam-gague, 20-foot smoke-stack, and Hancock's injector, all complete. Will take $160 cash on board the cars at Knoxville, Iowa. Cost when it was new, $237.50. For particulars, inquire of
1tfdb J. W. BITTENBENDER, Knoxville, Iowa.

SEEDS GIVEN AWAY! A package Mixed Flower-seeds (500 kinds) with PARK'S FLORAL GUIDE, all for 2 stamps. New flowers, new engravings; teems with floral hints. Everybody delighted. Tell all your friends. Send now. G. W. PARK, Fannettsburg, Pa.

DADANT'S FOUNDATION FACTORY, WHOLESALE AND RETAIL. See advertisement in another column. 3btfd

FOR SALE---Semi-portable engine and boiler, nine-horse power; price $250.00, on board cars. For further particulars, address THOMAS GEDYE.
LaSalle, LaSalle Co., Ill.

GLEANINGS
IN
BEE CULTURE.
DEVOTED·TO·BEES·HONEY·&·HOME·INTERESTS.
F.A. Whiting

Vol. XVI. Jan. 1, 1888. No. 1.

TERMS: $1.00 PER ANNUM, IN ADVANCE; 2 Copies for $1.90; 3 for $2.75; 5 for $4.00; 10 or more, 75 cts. each. Single number, 5 cts. Additions to clubs may be made at club rates. Above are all to be sent to ONE POSTOFFICE.

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DOOLITTLE'S BEE-CAVE.

BOXES FOR EXTRACTED HONEY.

I SEE on page 888 of GLEANINGS for 1887 that you wish a description of my special repository for bees. My bee-yard slopes gently to the north (I wish it were southeast), while near the west end is a slight sag through which flowed a small brook in wet weather, but which was dry the larger part of the summer. This brook now has an underground passage, so as to be entirely out of the way. West of the brook was a knoll, or rise of ground, facing the east, and rising at the rate of about four inches to the foot. Into this knoll I dug about 30 feet, or so that the back end of the hole was about 10 feet deep, measuring straight up on the west bank. This same hole was about 9 feet wide, and, for a trial, it was boarded up at first, a roof put over, and 3 feet of earth put on top of the roof. Herein I wintered my bees successfully, thus proving the value of such a place for wintering bees. When the boards became rotten I tore all down and put in a good wall of stone and mortar, on top of which I put a good strong roof, which was covered with three feet of dry earth, and over the whole was a larger roof, so as to keep the earth and all under it dry. The first cave did not have this last-named roof, consequently the dirt was kept wet by the rains and snows of winter. I find the latter much the best, as the dry earth seems to help to keep a more even temperature than did the former. The east end wall is 24 feet from the west, and here is the entrance door, so that the cave is in reality only 24 feet long by 6½ feet wide by 7 feet deep, inside. Two feet out from the entrance door is another door, and still two feet further out is another door, and in front of this last door is an anteroom 4 feet square, which has a door to that; so I have to open four doors every time I go into this cave. As these doors all fit nicely, I have three large dead-air spaces through which the cold air must pass to get to the cave, and yet the first-named door is the coldest part of the cave, or cellar, as is readily shown by the moisture collecting in drops upon it.

As I have said in a former article, after the bees are put in here, all is shut tight, and left so till spring after the bees are set out. After this the doors are fastened open, and all ventilators opened, till time of putting the bees in, so that the heat of summer shall dry all out as much as possible. By thus leaving open during the cool and frosty nights of October, it so reduces the temperature of the cave and ground around it that it stands at about 47° after the bees have got quiet. As winter progresses it gradually lowers till it reaches 44°, varying only from 43 to 45°, no matter how high or low the temperature goes outside; and, as I said on page 887, it keeps the same, whether there is one colony or a hundred in it.

To the west of the cellar, one rod, is 30 feet of fence, 4 feet high, which causes the snow to drift over the roof and cellar from 3 to 8 feet deep, and this snow has something to do with the matter; but I have never known a lower degree than 41 to be reached, with 20 degrees below zero outside and no snow.

THOSE BOXES FOR EXTRACTED HONEY.

I was quite a little surprised at the logic, or, rather, lack of logic, displayed in the editorial comments at the close of my article on page 931. If Bro. Heddon conveyed the idea at Chicago, which you attribute to him, he must at that time have lacked that clear-headedness which he generally exhibits. All know that candied honey in cold weather has a capacity of resistance almost equal to wood, and one of these boxes of honey is little if any more easily broken during the months I named than is a solid block of wood of the same size, being about as solid as bricks, except at the top. To make this more secure I use heavier lumber for the cover. Then about the leakage. Surely Bro. Heddon couldn't get so far off the track as to talk of honey, candied solid during December and January, leaking, even were it possible to break the boxes. Why! even A. I. Root used to tell us of cutting such honey up in square chunks and selling it in this shape as stick candy. Bear in mind, I do not recommend these boxes, and never did, except for the purpose set forth; viz , for holding and shipping *solid* honey during the cold months of the year. The sleigh is used as convenient for carting or carrying truck in winter, when snow is on the ground, but it is nearly worthless at all other times, as a means of carriage, and it would be about as consistent to condemn sleighs entirely as it was for Bro. Heddon to condemn a box for solid honey. No man could ever become more disgusted with wooden packages for liquid honey than I have been, and I have not used them for that purpose in ten years, much preferring tins and glass; but after the honey has been stored in tin tanks till it is candied so it will scarcely run, it can then be put in wooden boxes, and, after becoming solid, handled during the cold months to good advantage. Solid honey is conveniently gotten out of a box, while it is a nuisance to try to get the same out of the bung-hole of a keg or barrel, or from the screw top of a can, as many consumers try to do. We made a good point years ago, when the candying of honey was placed before the public, as a test of its purity; and upon that decision I saw the way clear to get pure honey in a solid shape to said public, and I still believe that whoever tries the plan unprejudiced will like it.

Borodino, N. Y., Dec., 1887. G. M. DOOLITTLE.

Friend D., I am greatly interested in that bee-cave of yours, not only for wintering bees, but it comes the nearest to cold storage without ice of any thing that has ever been given us. Your plan of making the snow drift over the cave is a wonderfully bright thought, and I never heard it mentioned before in any of our papers devoted to cold storage and cellars for farmers. The *Prairie Farmer* recently described a root-cellar that was much like yours in some respects. In our soil, I agree with you exactly in preparing a good roof over the dirt, to keep the rain out. You did not mention having a ventilator at the west end of the cellar, where it is deepest in the ground. For fruit or for roots this would be quite an item. By opening these ventilators at the proper time, so as to let dry air go through the cellar, all moisture can be dried out of the whole cellar and its contents. It seems to me that 6½ feet wide inside is very narrow, is it not? If you put your hives on shelves one above another, perhaps it is as wide as you need. This would allow a two-foot shelf on each side, and a 2½-foot passageway. For a root-cellar you would not need more than two outside doors—may be only one. If on level ground, the outer door could be made like an ordinary cellar-hatchway, with steps to go down. Of course, you want such perfect drainage that no water can ever show itself, even during the heaviest rains of spring.

I think friend Heddon himself had better tell us his experience, in print, with those boxes for candied honey. No doubt they will answer very well where the honey is candied solid and hard; but the honey we get will not always candy so as to make solid blocks; and, again, suppose you have to hold your honey over, or prefer to hold it over, would it not melt during the summer time, so as to make trouble? Perhaps, if stored in that bee-cellar, the even temperature might prevent candying. Who can tell us about that? I am leaning pretty strongly toward that wooden package for extracted honey, even if I did find some fault with it. Let us have the experience of every one who has ever used them. It is true, the Chicago convention rather "sat down" on the arrangement; but may be there were not many there who had tried it very much, except friend Heddon.

HONEY-TUMBLERS.

DR. MILLER PROPOSES TO SHAKE US, NOT BY THE HAND, BUT BY THE SHOULDERS.

FRIEND ROOT:—On page 938, friend Bugbee gives you some plain talk, at the close of which you want to get hold of him to shake him by the hand. Now, I'd just like to get hold of both of you, and shake you by the—shoulders! You both need a good shaking.

You admit there is trouble about honey-tumblers, and say, "If there is no other way out of it, we will go to the expense of having dies and tools made to make a tumbler holding a full pound of honey—no more, no less." Now, you ought to see that any attempt in that direction would only make matters worse. I have some tumblers of two sizes—No. 803 and No. 804. I bought them of you a few years ago, and, as nearly as I can make out the stencil on one of the boxes, they were made by Wallace & Co., Pittsburgh. You first sent the smaller size, and as that was too small I got the larger. I have just weighed one of these filled with honey, and it holds a trifle more than 17 ounces of honey. But it is filled just as full as it will hold, and I should not like to be so exact in filling a large number, so I like the size very well for holding a pound. But I suspect that much extracted honey is thinner, and possibly some of it is so much lighter that this tumbler filled with it would weigh hardly a pound. Suppose, now, you go to the expense of getting up a new tumbler "that shall hold a pound—no more, no less." It will hold just one pound of a certain specific gravity, and will *not* hold just a pound of any other. So all you have gained is the throwing on the market another size of tumbler to make still greater confusion. Is it not possible that some who have used this tumbler, and found it too small, have filled it with rather thin honey? If so, the obvious thing is to evaporate the honey till it goes in the tumbler, rather than to stretch the tumbler to hold a pound of thin honey. You see, this is a very different thing from the apple-barrel business. One is bulk, and a barrel of a given size will always hold the same bulk, while the other is weight, and you can't make a tumbler of a given size to hold always the same weight.

SECTIONS HOLDING JUST A POUND.

Neither, friend Bugbee, can you get a section that will hold just a pound. You ask if $1\frac{15}{16}$-inch sections "will average 1 lb. when used with separators." No, they will not. Even if they did average just one pound this year, they might average more or less another year, for the years vary. But will it do to sell each section for a pound, even if they do average that? Is it right to sell one man 15 ounces for a pound, when another gets 17? I very much doubt if there is any fair way, only to weigh each section and sell it for just what it weighs. And this, as it seems to me, is the greatest obstacle in the way of ever having a dime package of comb honey.

RENT FOR USE OF GROUND FOR OUT-APIARY.

I was much interested in the opinions given on page 946, and very much surprised at their varying so widely. They vary from little or nothing up to a rent of $500 or more per acre! I don't know how many times I have read over the reply of Dadant & Son, trying to make out some typographical error, or some way by which I could make it mean something different. They are solid, reliable men, not given to reckless statements, so I attach much weight to their replies. But let us look at it. An out-apiary will, I think, as a general rule, be planted, not in a village, but on a farm where land is not worth more than $50 to $100 per acre. One-eighth of an acre will be ample accommodation for an apiary of, say, 100 colonies. At $100 per acre that eighth of an acre can be bought for $12.50, and $5.00 would be a very high rent for it. Those respondents who gave a higher figure than this must have counted on something more—in fact, considerable more, in some cases, than the mere rent of the land. The Dadants pay one-fifth of the honey. If the average yield per colony is 75 pounds, then the rent is 15 lbs. per colony, or 1500 lbs. of honey for an apiary of 100 colonies. At $6\frac{2}{3}$ cts. per lb. this is worth $100, making the land rent at about $800 per acre. There must be a mistake somewhere. I think some of the friends might well reconsider the matter of paying such high rents. C. C. MILLER.

Marengo, Ill.

Now, look here, old friend, you need not talk about shaking anybody. I myself said that some honey is thinner than others, and I am inclined to think, still further, that some honey has a heavier specific gravity, even when the density is the same; and this accounts for the different reports in regard to our tumblers. The 804 is the one, if I am correct, that holds 17 ounces of very thick honey; and I presume this is the one you would recommend us to adopt.—Your objection to the ten-cent cake of honey I think might be got over, because the amount in question is but a fraction of a cent any way. The retailer should insist on each customer taking the first one he comes to, without pulling them all over, and in that case each man would stand the same chance, and none of us would be suffering very much loss.—In regard to the matter of rent, friend Dadant has himself, in the article following, covered the ground so thoroughly there is no need that either of us should say any thing more about it—at least, not much more.

OUT-APIARIES.

FRIEND C. P. DADANT GIVES US SOME VALUABLE POINTS FROM PRACTICAL EXPERIENCE.

FRIEND ROOT:—I wish to add a few words to the answers to the questions on page 946, concerning out-apiaries. It appears that we are the ones who pay the highest price for hiving swarms. It was after a long experience that we settled on this price, and we find that it is no more than sufficient. Perhaps it is owing to the fact that we are like Mr. E. France, and do not expect to have many swarms. We have found that it is very difficult to get a boy, a child, whose time is worth but little, to hive swarms; and if we found one, we would hesitate very much in entrusting him with the job. He must see that the hive is well prepared, that the frames hang true, that the bees are safely housed, and, when the swarm is in, the hive has to be carried to the location which it is to occupy. All this must be done by a man, by some one who has a certain feeling of responsibility, or it will be badly done. Moreover, as the *question* correctly states, the bees are usually located near a farmer's house; and did my readers ever see a farmer who had very much time to throw away in May and June, or in swarming time, whenever that may be? He must either sit there watching for swarms, and then he is a *bee-keeper* who had better be hired by the day, or else he must be called from the field to hive our swarm. If he gets only 10 cents, or 25, or 50 cents, he may at times hesitate very much before leaving his work, and your swarm will be in danger of being allowed to leave. Your farmer may have to climb a tree, or cut a limb from one of his apple-trees. All that is trouble, annoyance. True, if he can harvest a number of swarms in a day he will make quite a profit; but since he can not leave his business during the whole season to watch for your swarms, he must either hire some one to see to it, or do as I said at first—come from the field whenever a swarm is out. If the bees are not too far from the house, the house-folks generally notice the swarm readily, and there is no great need of constant supervision. If help has to be hired to catch the swarms, it had better be special help, hired by the apiarist.

But some of our friends will say that the ladies can often hive the swarms. That is so; but in many instances they can not; as when the swarm is high up in a tree, or if they are getting dinner, and the farmer and his hands are expecting to eat at their regular hours. If we say that we will make allowance for the swarms that are more difficult to hive, it becomes a source of trouble to decide when a swarm is harder to hive. On the other hand, if we are liberal with our man, we can require more care from him than we would otherwise. We can insist on his ascertaining that nothing is lacking in the hive, and on his transporting it at once to the place which it is to occupy, and setting it level, so that the combs will not hang out of their frames, etc. We can also ask him to ascertain which hive the swarm came from. This can be done when the bees first come out, and may save a great deal of hunting to the apiarist when he comes.

Taking it all in all, and considering that, in the olden times, the one who looked after the bees generally received half of the swarms and half of the surplus, we think our price of 75 cents will not be considered too high, by the majority of our readers.

In regard to the other question, "What rent should be paid for an out-apiary?" we are again the ones who pay the largest amount. We wish to state that, in this bargain, are included both the house-room for extracting, for spare supers, boxes, crates, etc., and the board of men and team while at work. We say team, because we take it for granted that the apiarist uses horses to transport himself from one apiary to another, and to haul his hives, boxes, honey, etc. When we put bees on a farmer's place, we expect him to take an interest in them, even if he does not work with them, and we want to give him a share of the profits, so that he will make the most out of them when we do. Then our interests are similar, and a bad season for us means a bad one for him. Then he sees his interest in cultivating plants that are beneficial to bees; and we have had one of our farmers to ask at the feed-store for alsike in place of red clover, just because he was expecting to increase his profit as well as ours thereby. In the same way he will think of sowing buckwheat, which he will plow under at the first frost, not only because it will act as a fertilizer, but because it will also give our bees a crop in which he has a share. One of our farmers, a careful one, was in the habit of running his mower over a lot of Spanish needles, just before they bloomed, in a low marshy place on his farm. Since we have bees on his place, and he has a share of the surplus, the Spanish needles have grown unmolested, wherever they did not injure his crops. Is it necessary to give more examples of the benefits derived from an association of the farmer with the bee-keeper? Were it not for the space which I should take, I could give 20 of them. C. P. DADANT.

Hamilton, Hancock Co., Ill.

Well, old friend, I guess your head is level on this matter, after all, even if some of us did not understand you. It never occurred to me that this rent of ground for the apiary was going to cover board and lodging and horse-feed, and all that; but I am sure that it is the better way. You thus make the owner of the land a small partner, as it were, and have him interested with yourself; and it is true that we often defeat ourselves by wasting too much time on small penny matters. Pay the folks handsomely, and the chances are they will take care of your property handsomely; and a hearty good will is, a great many times, worth several dollars.

FAREWELL ARTICLE TO GLEANINGS.

FRIEND HUTCHINSON'S NEW DEPARTURE.

ABOUT ten years ago I received a card that read something as follows:

> *Friend Hutchinson:*—We usually have more matter on hand than we can make room for in GLEANINGS; yet we think we can use the articles you have sent, and have credited you $3.00 for the same. A. I. ROOT.

How well I remember the thrill that went to the very center of my being as I read these words! It was the first money I had ever earned with my pen. Since then I have been a regular correspondent for GLEANINGS, writing, perhaps, in all, 150 articles; and although I have been free in my criticisms, I have always had, and still have, a warm feeling of friendship for GLEANINGS, its editor, and its readers; and that this feeling is returned, I feel certain from the many kind and encouraging letters I have received, and from the manner in which, at conventions and fairs, men have come up and grasped my hand, saying, "I know this must be Mr. Hutchinson, from the picture I have seen in GLEANINGS. I have read your articles in GLEANINGS, and have wanted to see you for a long time."

I have "grown up" with GLEANINGS, so to speak; but by reference to its advertising columns, you will see that I am about to start a journal of my own; and although it is done with feelings akin to sadness, I must say "farewell" in GLEANINGS, hoping that I may bid you all "welcome" in my own new paper. W. Z. HUTCHINSON.

Flint, Mich., Dec. 20, 1887.

Perhaps I should explain to our readers, that the articles for which I credited friend H. the three dollars were not only nicely and carefully written, but well punctuated, and the sheets were arranged in the most convenient manner for the compositor; but they contained real, sound, honest, and practical ideas, evidently written with the view of helping the brotherhood. We, too, feel sad to think of losing friend H. from our pages; but we are always ready to rejoice over any thing that will benefit the people at large, and no doubt he is right. I believe the first work that our friend ever did for print was through GLEANINGS; but during the years that have intervened, we have been pleased to see him a prominent contributor to the *Country Gentleman*, *American Agriculturist*, and, if I remember correctly, several other agricultural papers.

TUMBLERS VERSUS BOTTLES FOR HONEY.

SOMETHING FROM A DEALER.

I WANT to say a word about tumblers to hold one pound of honey. I am a retailer of gilt-edge extracted honey, and think I know whereof I write. The one-pound bottles do not fill the bill. People would rather pay for a tumbler than for a bottle; and then, the bottles are too high. When we take into consideration the expense of corks, tin-foil caps, and expensive labels, it is plain to see that the tumbler has all the advantages. When you, Mr, Root, or some other friend, gets up a tumbler 2¼ inches across at the bottom, and three inches at the top, and just deep enough to hold one pound of honey, with straight sides, something will be accomplished that should have been accomplished long ago. They should be made to hold 16 ounces of honey *when level full.* Those who have handled tumblers will recognize this as a solid article. I have no ax to grind. Justice to all. If the words, "One pound pure honey" were blown in the glasses it would be a help to the trade. ——

Covington, Ky.

See Dr. Miller's article in this number, friend ——, showing the difficulties in the way of the improvement you suggest.

UNFINISHED SECTIONS.

VALUABLE SUGGESTIONS FROM SAMUEL CUSHMAN.

I WAS very much interested in your account of the Chicago convention, and especially in your explanation of why we should use foundation in sections, instead of drawn-out combs. I have been slow to accept the idea advocated by various writers in the bee-journals, that unfinished combs in sections should not be again used. Previous to the present season, my experience led me to believe their use a great help. Two years ago, by doubling up I secured a choice lot of apple honey in sections. Every other frame of sections given contained drawn-out combs. These combs were left over the previous season, and had been cleared by the bees before they were put away, and were nice and white. Some were partly, others fully drawn out. The comb honey obtained was as white and clear, and as well finished as that built on new foundation. We could generally tell which was new and which had been used before, by the wood or section itself. This was the only difference seen. If there was any difference in thickening or ripening it was in favor of that in the drawn-out comb. This honey took the first prize at the Rhode Island State Fair; and some that was kept until midwinter was just as fine in appearance—no sweating or leaking.

I then believed that, without those empty combs, I should not have received such a crop. In this belief I extracted in the fall all partly filled sections, that I might use them the next season; but as it was done late they were not placed where bees could clean them, but were stored as they were, sticky with honey.

Last spring the season was unsuitable for securing apple honey, and the sections were not used until supers were adjusted for the clover crop. I then put in each super from one to three wide frames of these sections of comb. Clover was a failure, but basswood yielded well for this location. Our strongest colonies filled their supers, but many of the drawn-out combs were poorly capped, and, when finished, were inferior in appearance to that built on foundation.

Fair colonies filled the brood-nest and the empty combs in sections, but did not cap them, and did not work on foundation. We have been troubled by some of these combs sweating. Was it because they were not cleaned by the bees before they were stored, or is basswood honey so much thinner than apple honey that it could not be so well ripened in drawn-out combs? Your conclusion of the question is just about what I have settled on. I shall put on the hive three or four drawn-out combs, for a bait, in the center of the first super, using those partly drawn out in preference to full-depth combs, and only those which are white and cleaned of honey the season they were built. All other sections will contain full sheets of thin foundation. Supers placed underneath, when tiering up, will contain only foundation. When working for goldenrod and aster honey in sections, it is cool, and bees do not build comb or work on foundation readily. We shall then fill the supers with drawn-out comb. By this plan, and by giving but very few brood-combs, we secured this fall a limited amount of aster honey in sections, which was delicious and very handsome.

Now, friend Root, I should like to ask you a few questions relating to this matter.

Do you believe it is better to use foundation instead of combs in the extracting supers, for the same reasons? Did any one ever know of honey, stored above or below in thick brood-combs, to sweat or be unripe when well sealed, and left on the hive through the season? If it applies to one, why not to the other also! To be sure, ordinary brood-combs are about ⅞ inch thick, and that in sections sometimes 1¾ inch; but many use extracting-combs 2 inches thick. I have some myself that thick. If bees ripen honey in brood-combs, why not in sections? Can it be because the sections cut them up into small clusters, resulting in less heat, also causing less circulation of air, while on brood-combs they can cluster in more compact masses, generate more heat, and the circulation of air is less restricted? If this is the case, then perhaps the side-slot section (or, as the English bee-keepers call it, the "four-bee-way section" is just the thing.

I have thought that bees often ripen honey in the brood-combs first, then take it up above and store it in sections, and this view was strengthened by the following:

In preparing the colonies for apple bloom, instead of uniting all with other colonies I filled the brood-nest of one with ten combs of capped brood from other colonies, and above I placed an odd crate containing a lot of narrow sections, 1¾ inches wide, filled only with foundation, 32 in all. The weather was poor, and there were but three or four good days, just as the bloom was almost over. After the blossoms were all gone I found the super was over two-thirds full; and of that, more than half was nicely capped. I left it on, and in a few days more all were full and well capped, except the outer half of the outside sections next to the glass. On examination of the brood-nest I found half of the brood-combs were empty of both brood and honey—the remainder partly filled with brood and honey. What would be your explanation of the case? SAMUEL CUSHMAN.

Pawtucket, R. I.

Friend C., we are much obliged for your report, for we want to get all the truth there is in regard to this matter. Your first experiment seems to indicate that perfectly clean empty comb is better than foundation. Your last experiment, however, does not seem to tell the same story. I do not know how it will be in regard to working for extracted honey. It would seem that shallow combs, or even combs with foundation not built out, would be best for getting a nice article of thick, well-ripened honey. Some years ago the matter of using very thick combs, produced by spreading them a good way apart in the upper story, to be used especially for the extracting season, was considerably talked about. The matter was brought up at the Chicago convention. I believe friend Boardman did say that he had used such very thick combs for extracting, but that he felt sure the bees did not ripen the honey as rapidly as in ordinary depth of brood-combs. In regard to sections made with four entrances, see Question 25 in this issue. Your suggestion, that the bees store the honey and ripen it in the brood-combs before they move it up into the sections, is a valuable point. We were told by somebody, a good while ago, that the bees which gather the honey never carry it up into the sections, but that they just take it inside of the hive and deposit it in the first empty combs they come to, leaving the nurse-bees to put it out of the way, and put it in supers or wherever it belongs. While writing in regard to this matter, a little incident of years ago occurs to my mind. The honey was coming from basswood in great floods. Somebody called me just when I was putting some empty combs back into the hive, the combs having just been extracted. This hive was the old-style American, with an open side. Well, these combs were put just inside of the hive, without being moved up into place, and the open side was leaned against them. I did not have time to put it in place and turn the buttons. The bees were working heavily, and the entrance was pretty well crowded. When I came back, half an hour later, the incoming laden bees had found the opening, and were going in there because it was a shorter cut. The outside comb that was not moved up against the rest of them contained quite a little freshly gathered honey. The workers were so eager to find a place to put it, they simply put it in the outside of these empty combs. Yes, and here is one more fact: That same season, somebody was guilty of leaving some pieces of comb on the alighting-board of an American hive. The honey came so rapidly one day that I saw quite a lot of honey sparkling in the cells of this old neglected dry comb. In their haste, the workers had evidently dumped it down there, and hustled off to the fields for more. Now, then, to get back to our subject: The honey-gatherers—at least sometimes—drop their thin watery nectar into the very first bit of comb that comes handy. It would also seem quite natural that even this hastily dumped-down honey should be evaporated more or less before it is moved back into the hive or up into the sections; but we do not know it for a fact. Can somebody enlighten us on this point?

THE COMBINATION SYSTEM.

SHOULD EXTRACTED HONEY BE SECURED FROM COMBS HAVING ONLY A MODERATE DEPTH OF CELL?

WHEN writing the article on page 852, I expected somebody to take me up on the point you make in your comments thereon. I agree with you, that it does not look like good policy to take away the set of extracting-combs before the bees have made a start in the sections. The only reason why I did not advocate raising them up and leaving them on awhile, as you suggest, was that I had never tried it; and without trying it I could not be certain just how it would work. I know it will seem strange that I should have neglected to thoroughly test so important a point in the system I am advocating; but I must admit that such is the fact. The plan always worked well as I gave it, and so I never thought it worth while to experiment further until two years ago. In 1886 I was so busy that, before I realized it, all my bees that were in shape for a trial were at work in the upper story, in the midst of a honey-flow; and it was too late for a fair trial. Any bee-keeper in this part of Illinois will readily see why I did not test it last season. You can't make experiments in honey production when there is no honey.

I never like to recommend any thing I have never tried, so I kept silent on that point. Since it has come up, though, I will say that it is my opinion that it will pay, under some circumstances at least, to leave the extracting-combs on until a start has been made in the sections. This will be some more labor, and will increase the proportion of extracted honey produced; but there will not be such a break in the work of the colony, and not so much liability to swarm.

By the way, my bees do not swarm nearly so much as most others' seem to. I do not know whether the difference is in management, locality, or bees; but it seems to me there is a difference.

SECTIONS FILLED WITH COMB.

I am heartily glad to see so many testify to the worthlessness of old combs in sections. It will probably be hard work to get it into the heads of some that it is any thing else than wicked waste to melt up nice combs; but I think we can persuade the majority that all section combs not in the best possible condition had better be made over. It is not likely that many very soon will grasp the whole truth that it will not pay to save any such sections at all.

Judging from the comment the subject has received, it is a new idea to many that sections filled with comb are any thing else than an advantage. I have been convinced to the contrary for some time. If you will turn to page 445, GLEANINGS for 1883, you will find the record of an experiment made by me in 1882 that showed me that foundation was superior to comb in sections. For the benefit of those who may not have the back numbers, and did not attend the convention, I will say that the experiment consisted of putting on each hive about an equal number of sections containing natural comb, worker foundation, and drone foundation, the worker foundation being fresh, while the drone size was old and hard. At least 1500 sections were so arranged. To quote the article alluded to, "The worker foundation was drawn out and finished first; the natural comb next, while the bees seemed very averse to working the drone foundation." Each year's work since has only helped to confirm me in the belief that the use of comb in sections was unprofitable.

There has been a great deal of talk about the hard septum left by foundation, and the effect it might have on the market; but I have always been more afraid of the old sections left over from the preceding season. A section of comb left all winter, to bleach and harden and become blackened by dust, etc., is not an inviting subject for mastication, even if it contains the best of honey, and we have plenty of evidence that usually it does not. It just occurs to me, that the reason why extracted honey is never quite equal in flavor to the best comb honey, and is usually much inferior, is that, on account of being placed in deep cells, it remains longer in an unripened condition. J. A. GREEN.

Dayton, Ill., Dec. 10, 1887.

Friend G., I am really ashamed to find

that it is indeed true, that you called attention to this very important matter as long ago as 1883. Very likely some of the friends did think of the important truth that your report indicated; but it is a little strange that nobody took it up and called attention to it. Now, suppose the bees have drawn the foundation out but a very little, say from one-fourth to one-half an inch. If the section is nice and clean, is it not best to use it? I have, a good many times, thought that extracted honey was seldom if ever quite equal to some samples of comb honey, especially if it is extracted about as soon as it is gathered. Where an upper story is left on the hive until the honey season is all over, and then extracted, there is no question about it; but it is very likely true, that even then the honey in very thick combs would be a little inferior to that in shallow combs. Then comes the question, Can honey be ripened by artificial means so as to be equal to that thoroughly ripened in the hive?

STATISTICS FOR BEE-KEEPERS.

SOME TREMENDOUS FIGURES FROM OUR FRIEND GEORGE E. HILTON.

May I add emphasis to what Prof. Cook has said in regard to this matter, and make additional suggestions? It is something I have been interested in for some time, and, for the first time, the way now seems clear; and it requires only a little effort on the part of bee-keepers themselves to receive this much-desired information. The great newspapers of the country, and even the Government itself, stand with extended hands to help us in this matter. Some time ago I received a letter from the business manager of the N. Y. *Tribune*, asking me for an article and a statistical report of the bee and honey industry of the United States. I wrote him quite at length, but was obliged to admit that I did not consider my sources of information reliable, and that certain portions were misleading. Perhaps it would have been better not to have written at all, but I desired to make the best showing I could, the recapitulation of which was about the same as friend Newman reports in a recent number of his valuable journal; i. e., that the annual product of North America is about one hundred millions of pounds, and its value is about $15,000,000; the annual wax product is about half a million pounds, and its value about $100,000; that there are about 300,000 bee-keepers in North America; and at the very low estimate of ten colonies each, this would amount to 3,000,000; and at $5.00 per colony for bees and fixtures, it would make an investment of $15,000,000, so the industry represents at least 30 millions of dollars annually; and if the facts were known, I think it would be nearer $50,000,000. You will remember the letter I read at the Michigan State convention, from the U. S. Statistician, offering to include our industry in the monthly crop reports if we would furnish the corps of correspondents, or inform him how to get them.

Now, my suggestion is this: No one has better facilities than yourself for selecting four or five representative men in every State, to make reports to you (I don't think there is a bee-keeper in the United States that would think of accepting pay from you for his services). Well, after you get your corps well established, just turn their names over to Statistician Dodge, and we shall have the whole thing in a nut-shell. The reports you give will reach all who read the bee-journals, and the crop reports will reach thousands that do not read the journals, and they are the very ones most in need of information.

You may receive many better and more feasible plans than the above; if so, I shall be very thankful. In either case I shall be very glad to serve you as suggested by my dear friend Cook, and please do not say any thing about pay.

Fremont, Mich., Dec. 12, 1887. GEO. E. HILTON.

Why, friend H., your figures and values almost take away one's breath. I did not suppose it possible that our industry represents so much. Now, I presume that not as many as one in twenty of the 300,000 take a bee-journal of any kind. Many thanks for your kind offers of service, friend H. We shall be glad to call on you when we are ready. Our industry is growing, and getting to be a great deal better understood than it was a few years ago. It has been long said, that honey has never yet been served at our first-class hotels. At the Morton House, in Grand Rapids, we had beautiful honey for supper, and hot cakes to match. They brought us two hot cakes at a time; and as soon as we were ready they brought us two more, and so on. The honey was served in dainty little dishes holding square pieces of about two ounces. I am pleased to notice, that in the little pamphlets that are now being sent out, describing the resources of the great West, and other localities, they are begining to mention bee culture with other things.

BEE-KEEPING FOR WOMEN, ETC.

RUBBER BOTTLES.

As you do not believe much in medicine, I think you will find rubber bottles, holding two quarts or one gallon of boiling water, invaluable. The one we use holds two quarts, if filled only two-thirds full. It will adjust itself to different parts of the body. You would do a good work for humanity if you could get them at reduced prices. Many could then afford to buy them, as they come high; at least we thought ours was high—$1.75.

BEE-HATS.

We have been troubled with our ill-fitting wire-cloth bee-hats, as the wire makes them stiff, and, unless fitted to the head, they flopped around unpleasantly upon the head whenever we stooped. I thought I would try a lady's old straw bonnet with long ear-points. The one I made for myself fit so comfortably I made one for Mr. Axtell. Although it does not look quite so genteel as a hat does, perhaps, yet it is so comfortable and easy on the head that we both conclude we never want to wear any thing else, when made of wire cloth in front, and a cloth curtain at back and side. Our hats being in constant use, we get holes torn through very easily when using brussels net. Hence we prefer wire cloth for constant use. For Mr. Axtell's bonnet bee-hat I sewed a piece of braid on top, to cause the wire cloth to project over in front further, so the wire cloth would not come in contact with his Roman nose.

I shall have to disagree with Mrs. Chaddock about bee-keeping being too hard for women, ministers, and invalids. I am a woman and an invalid, and I find the pursuit as it were an angel of mercy to me. I delight in it, and it has become, as it were, life to me, as my health always improves while working with bees, and declines when bees are put away. Possibly the bee-poison causes a languor or weakness with Mrs. Chaddock. If I thought so, I would dress bee-proof, as I always do, except I prefer to work with hands bare. But my help I always try to have perfectly protected from bee-stings; but often they see me working with no protection on my hands, and they learn to do without.

As our pets, the bees, have been put to rest, and fall work pretty well brought up, I will again visit "The Home of the Honey-Bee" by pen and ink. The above is a sweet name. We like to read your descriptions in GLEANINGS of the "Home" and its surroundings. We have these many years followed you in your growth, both in Christian life and in business pursuits. You have become like a branching tree, whose branches reach to the ends of the earth. While the old stock is waning, new Rootlets are springing up to walk in the paths of the parents, and to carry on the good influences thus commenced, away over into eternity, after long cycles of time have passed.

Oh the good we all may do,
  While the days are going by!
Oh! the world is full of sighs,
Full of sad and weeping eyes;
Help our fallen brother rise,
  While the days are passing by.
But the seed of good we sow,
Both in shade and shine will grow,
And will keep our hearts aglow,
  While the days are going by.

It is not altogether the good we can do personally, but the good that others accomplish brought about by our influence over them. This was what a good minister said to me this fall, as I was lamenting we had so little cash to give for Christian work this year. "It is not so much what we do, as what we are," he said. MRS. L. C. AXTELL.

Roseville, Ill., Dec. 1, 1887.

We will gladly see what can be done about getting the rubber bottles cheaper, my good friend; but why not use soapstone bricks, with a bail to them, that can be bought so cheaply almost everywhere? I am aware that the latter does not fit so closely to the body; but when the soapstone is enveloped in flannel it answers almost every purpose, at our house. I am very strongly in favor of applying heat in the way you suggest. With myself, it often performs wonderful cures; and I think many cases of severe sickness might be obviated entirely by the timely and prompt use of hot water or the soapstone, or even a hot flat-iron, when nothing else is handy.—No doubt an old Shaker bonnet would be just the thing, except in looks; and I hope you will excuse me for saying that I should not want to ask one of our young men, or old men either, for that matter, to be seen about the hives with a Shaker bonnet on. Can not some kind of hat, that will afford an equal protection, and yet not make one look as if he belonged to the lunatic asylum, be found? In the height of the honey season we often look untidy enough as it is. If we men-folks should add a Shaker bonnet to this untidy appearance, I am afraid we should cast a slur on the industry. I hope you will excuse my criticisms on your suggestion.—I am very glad indeed to know that you still find the bees a benefit to your health. Many thanks for your kind concluding words.

BEES, FRUITS, AND VEGETABLES, IN FLORIDA.

REPORT FROM ONE OF OUR A B C SCHOLARS.

AN article which I and others need very much is a sprayer for trees and plants; not a large pump, but something that may be carried around in the hand, and not waste too much costly liquid. If you have such a tool, please let me know. If not, I think there would be a large demand if you would keep them in stock.

I am much interested in "What to Do," and am trying to do even better than you. I can get *more* than $1000 worth from an acre. Last season I sold, from $\frac{86}{160}$ acre of strawberries, 5560 qts. for a little over $700; with net, $400. The price ranged from 50 to 8 cts. per quart, and the picking season lasted 5 months. The strawberry-plants are now just beginning to blossom. Those cabbages of yours are probably safely stowed in a cellar. I have 5000 in all stages, from just set out to almost full grown; and the older plants, I think, cover the ground as those did you saw at Arlington, Mass. I should like to make arrangements to ship you some of my early fruit. Tomato, marrow squash, potatoes, melons, egg-plants, etc., are harvested here from the last of May until July 1st. Last season my strawberry crop, until April, was shipped in open (ventilated) crates to Kansas City.

This has been my best honey crop. From 32 swarms, spring count, and very little care, I have taken 1300 sections and 1800 lbs. of extracted. I am shipping the comb to New York and Boston. It sells for about 12½ cts. per lb. The extracted I sell here. After considerable experience I find it sells best in 5-cent pails holding about 2 lbs. I leave it on sale at the stores at $2.50 per dozen. They retail at 25 cts. each.

When you come to Florida, please meet me. This is one of the celebrated sea-islands, and a great shipping-port. About 13,560,000 feet of lumber alone were shipped from here in November. The city has been sinking some artesian wells in the last few months, that may interest you. The first, a six-inch one, was drilled down 556 feet, when the tubing telescoped and it had to be abandoned. Then, right along beside it, an eight-inch hole was drilled 570 feet. A coral rock was struck, and the water began to flow; but the drill went 30 feet deeper, right through the rock. After water was struck, the last 30 feet was drilled in two hours, the water throwing out the rock. The flow is 2000 gallons a minute. It flows over a tube 40 feet above the surface, the surface being 25 feet above sea-level. The temperature of the water is 73 degrees, and the well cost, complete, $3000. H. C. DANIELS.

Fernandina, Fla., Nov. 5, 1887.

Friend D., the article you call for is one of the needs of the present day. There is a great variety of machines in the market, and it depends a great deal on just what you wish to do with them in deciding what machine to use. There is probably nothing in the world, that will do the amount of work, for any thing like the price, like the Smith fountain pump. It can be carried in one hand, with a pail of liquid in the other, but you must set it down when you operate. The Whitman fountain pump can be operated while you have a pail of liquid on your arm, but it costs a great deal more money. Woodison makes a spray-diffuser that is excellent, but it costs three or four dollars. A great deal of time has been spent in devising sprinklers; but my experience is, that every thing with a perforated head, like a rose, is objectionable because it fills up so soon. The spray-diffuser is much the best. A watering-pot can, of course, be used, but it wastes a great deal of expensive liquid, and gives some of the plants too much, and others not enough. Where the liquid is to be carried in a barrel in a wagon, when we have to spray fruit-trees, for instance, a powerful force-pump is needed, and a great many of these are already in the market. The whole arrangement answers for treating potato-bugs with Paris green, where there are large fields of them. I am firmly convinced, however, that, in a majority of cases, Terry's plan of hand-picking is the cheapest and surest for the potato-beetle. At the Michigan State Horticultural Convention in Saginaw, Prof. Cook gave us quite a talk on insect-pests; and I believe the general conclusion was, that hand-picking, or some equivalent plan, is, a great many times, the shortest cut to success, especially if we commence just as soon as the first bug makes its appearance. Even on squash and cucumber vines it will often be found to be the cheapest and shortest way, especially if you cover them, when small, with the plant-boxes.—I am very glad to know you are doing so well in your Florida home; but our Medina market would probably not pay the fancy prices you get for your early products. Ten cents a pound for the first tomatoes, cabbages, cucumbers, and the like, can be obtained until the market is satisfied, and I presume other towns in your vicinity would pay about the same; but I presume that most of *your* products will have to be sold in our large cities.—I am glad to hear of your success with artesian wells. These will be a wonderful aid toward making a sure thing of your crops.

REESE'S CONE-CASE BEE-ESCAPE.

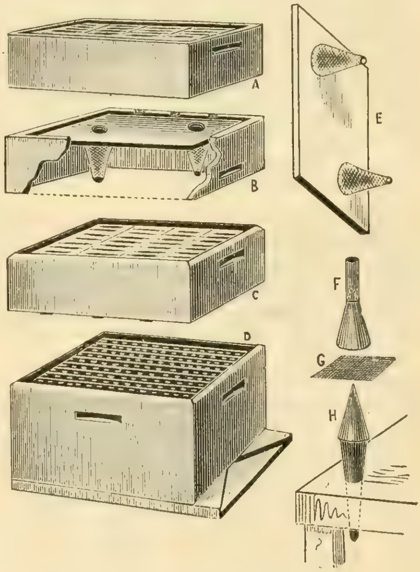
HOW TO MAKE, AND HOW TO USE; VALUABLE SUGGESTIONS.

MR. ROOT:—I have had in practical use the past season a device or plan for getting bees out of finished or full cases of honey, etc., while on the hive, without the use of smoke, etc. The plan also works well when applied to a pile—less or more—of full cases, when the bees can escape and not return; but I claim the application to the hive proper as new and original. One of the oldest and most practical bee-keepers and writers on bee-keeping has also given it a rigid test, and pronounced the plan practical and thoroughly successful. Dr. C. C. Miller also has the device to test; but his letter, which I inclose, will explain what he thinks of it, without having an opportunity of testing it, on account of the lateness of the season.

Friend Reese:—There is no question but that your affair will work. It is too late to try it, but I know without trying. Somewhere I have a dim recollection of seeing the double-cone principle mentioned, but it could not have been in the practical form in which you have it, I think. You speak of trying it with feeders; but in this place it is too late and cold, even for that. By all means, send me the pattern for the cones, if you will be so kind. Your cone escape will work nicely, I think, in this way: Having driven down the usual number of bees, take off the supers and pile them up four or five high, then put a cone-case on top to let the bees out. This will be more trouble than your way, but it would be better for an out-apiary, where the work must be rushed through. C. C. MILLER.

Marengo, Ill., Oct. 29, 1887.

Now, in the first place I do not desire to apply for a patent on this "affair," as Dr. Miller calls it, but I have come to the conclusion that you are the best man to have any appliance that will benefit bee-keepers generally, as you can put it before them to a better and greater extent than any one else.



REESE'S CONE-CASE, AND HOW USED.

The "affair," or cone-case bee-escape, is simply as follows: Take any empty surplus case that any bee-keeper may be using—say, for illustration, the T super you are making. Cut a thin board that will just fit evenly inside the T case; bore two one-inch holes, one near each end. Make two small cones of wire cloth, just large enough to tack over the one-inch holes, and about 1¼ inch high. Now make two more larger cones, about 3½ inch at base and 3½ high, and tack over the smaller cones. This will leave a space between the smaller and larger cones, and each cone has a hole in its apex that will admit a bee. You now have a device like E, in the illustration. Fasten this board, with cones, near the bottom of your empty super, as shown by B. Now, as this empty section-case with the false bottom—or top—with cones, is just the size of the surplus cases already on the hive, the full super may be raised as at A, and a super (C) filled with empty sections can be put on the hive. Between the supers A and C, the cone-case B is placed, with cones pointing toward the brood-nest. The full supers of sections and bees can be put on top of the cone-case, and all is done in a twinkling. In a few hours you may expect to have your full super all clean of bees, and not a cell uncapped. If the cone-case be adjusted in the afternoon or evening, your full super will be just as you would desire it next morning.

I make the wire-cloth cones very rapidly and perfectly by using two tin cones, the size I want the wire cones, and just mold the wire cloth between the tin ones. F shows the outside cone: C is the square of wire cloth, and H the inside cone, which is fastened on to a wooden stake, the latter stuck into the bench. The central mesh of G, or as nearly as may be, is placed on the apex of the cone E. The cone F is then driven down, forming the square of wire cloth into a cone. I also make queen-cell protectors on these tin cones, to perfection.

If you think you see any thing in this bee-extractor, and do not just exactly understand every thing about it, just let me know, and I will send you by express, prepaid, a life-sized model that you can take a good look at, and I know you will see practical sticking out on all sides.

I think the tin cone-molds are original, and can be made very cheap; and I doubt if any thing else will work so perfectly, provided the cones are made right. J. S. REESE.

Winchester, Ky., Nov. 22, 1887.

In response to this, friend R. was requested to send us models of his invention, which he did. It seemed so practical that we immediately placed it in the hands of our engravers, to show how the whole thing operated. In the mean time we received the following from our friend :

Dear Sir:—You will observe that I have sent one cone-case arranged to fit your T super, as I understand it to be 13½×17¼, inside measure. I am inclined to think one set of the wire cones would answer every purpose that the two do, especially if the hole were made larger, say 1¾ or 2 inches. In fact, I used our case with one large hole, one inch instead of two, and it seemed to work quite as well. I have used the cone-case in several ways, with perfect success. In one instance I had two brood-cases tiered; and when I wanted the top one off I put the cone-case between them, and all the bees went down to the queen; and at another time I gave it a most severe test by putting it between a T-super feeder full of bees, and the brood-chamber; and in a very short time the feeder was entirely freed of bees—not one remaining. I have also used it as Dr. Miller suggests, on a pile of full supers, with the few bees that could not be smoked out.

I also send the tin cones that I use to mold the wire-cloth cones, and I want you to give them a test. I think they are worthy of being fully described and illustrated in GLEANINGS, as they are simple, and easily made and worked. I have also used the small cones to prevent or stop robbing, by taking a thin strip, about like a piece of lath, and as long as the entrance is wide, and putting one or more one-inch holes in it, and over the holes a small cone. This lath with cones pointing out or from the front, and secured over the entrance, will allow the bees, robbers and all, to come out, and none can return until the lath is removed, which would be at night if in a bad case of robbing.

Winchester, Ky., Dec. 1, 1887. J. S. REESE.

Friend R., the use of the cones for the purpose you mention is not altogether new; but the plan of using them in connection with an empty super is new, so far as I know, and will be likely to prove very valuable. Your plan of making the cone is also a bright idea, and, so far as I know, an original one. You make it so plain that almost every bee-keeper can, during the winter time, fix up his own bee-escapes. My impression is, that one set of cones is practically safe.

AN IDEAL LOCATION FOR AN APIARY.

WINDBREAKS; FRUIT AND SHADE TREES, ETC.

WERE I to choose an ideal situation for an apiary it would be on a gentle slope to the south or southeast, with buildings or large trees to the north side, and, not far distant to the south, another protecting hill or wood. If in a locality exposed to east or west winds, I should want a windbreak in those directions also. For windbreaks about an apiary, it seems to me there is nothing better than evergreen-trees. We must soon begin to use evergreens and the various hedge shrubs, as they do in England, for fences, and let us begin in the spring by putting one about the apiary. The common spruce or hemlock, properly trimmed, is hardy, and will do good service.

A neighbor remarked to me last spring, that, if he had built a tight board fence to the north of his apiary, where the wind came through between two buildings, he would have saved at least one hundred dollars. The mortality was much greater opposite the opening. Another acquaintance has for years wintered bees in box hives out of doors; and during the severe winter of 1886-'7 he lost only one or two, by mice. He is situated in a narrow ravine between two mountains: and although the sunshine reaches there, no breeze disturbs the quiet of this old-fashioned bee-yard. I visited this friend's bees during a cold day last winter, and I was surprised to see, through a large entrance-hole, part way up the side of the hives, the bees crawling slowly over each other as they were clustered upon the combs within. Bees thus exposed could not have lived in the open country.

All these things help to convince me that some sort of protection besides the hive is needed to winter with the most perfect safety. As I said before, I would have evergreens on the exposed sides of the apiary, but never among the hives, for shade in winter is apt to induce chill and dampness. To my idea, there is no better tree for shading an apiary than the plum. It never grows too high to take a swarm easily, and its shade is not too light or too dense. Next to the plum is the cherry, though its fruit matures earlier, and is apt to interfere with bee-work in the gathering of it.

If you live in a village, or where your room is limited, and you are compelled to put your bees near the highway where people are passing close by the hives, I am very confident you will not be troubled by persons being stung if you will plant an evergreen hedge next the street, and train it high, and then six feet back of it plant a close row of plum-trees and place your hives beyond them.

This matter of outside protection is much neglected in this country. I have several kinds of fruit-trees in my bee-yard; for what is more delicious, or brings in more money for the outlay, than fresh ripe fruit, such as cherries, plums, pears, grapes, and apples? If you have no apiary, or have one and do not fancy planting trees among the hives, still, I say, plant fruit-trees. There is too much of selfishness in our ways of living to-day—not petty selfishness, but big selfishness. Houses are but flimsy structures, because "it will last as long as I want it to, and the next one can do as I did." Many an orchard is never planted, because "it will just get to bearing as I am done with this world."

Let us think of what was left us by our ancestors. Vermont was once one unbroken forest. Let us think of the strong arms that once cleared its acres, and lived in log cabins the while, but to die as the sun was rising over a fertile, grain-clad country. Let us think of these things, and "go and do likewise." If you have attended to this matter of shade and fruit trees in the apiary, I think there is scarcely a necessity of clipping the queen's wing to prevent absconding of swarms; though if you allow many high trees to grow near by, you may have an occasional climb. I had over sixty swarms issue the last season, and only one (a small second swarm) attempted to leave. Plenty of small trees will catch them every time.

I do not like the appearance of those large bee-yards without a tree in them, and with the hives set in regular rows each way. I find that, with hives thus arranged, it is difficult to tell individual colonies except by the numbers, and a number is too abstract for me. I group three or four under the shade of this "Fameuse," a couple under that small "Flemish Beauty," three or four under the friendly shelter of that clump of cherry-bushes. I take pains to leave passageways here and there, through which I can run my wheelbarrow, then each hive among one hundred retains its separate impression, and its general history and present condition can be told without a record, though some record is often necessary.

WORKER CELLS TO THE INCH.

I have been looking up, or measuring up, since I read Dr. Miller's article in GLEANINGS, and in twenty pieces of natural comb, from different colonies, I found that the average size is 58.25 cells to the foot, placed side by side, which is less than Dr. M. estimates, by nearly two cells to the foot. However, I have measured samples of comb built upon Given fdn., which ran just five cells to the inch. Vandervort fdn. ran about the same as natural comb. Now, I wish to ask, upon this subject, whether it were not barely possible that the stretching and sagging of fdn. may not often be caused by too small cell foundation. Is it possible to enlarge the size of our bees by slightly enlarging the size of the cell, say to 56 to the foot? I should like to know if any one has tried it. I should like to learn, from those who have tried it, the effect of drone foundation in sections, with queen-excluder beneath.

Larrabee's Point, Vt. JOHN H. LARRABEE.

Friend L., your suggestions in regard to windbreaks are excellent; and it is not only the bee-keeper but the market-gardener and fruit-grower who can afford to furnish windbreaks. It makes a vast difference in any locality about cutting off the prevailing cold winds. Nothing does it so effectually, so far as my experience goes, as a heavy forest, or, better still, a forest of evergreens. If we can have all the sunshine and not have the wind, we are virtually a good many miles further south. Your suggestion in regard to grouping the hives is also good. The matter of getting bees slightly larger was experimented on and discussed years ago; and although some experiments seemed to indicate that larger bees *were* secured by making comb foundation a little larger, others seemed to indicate they were about the same. In connection with this it may be well to mention the fact that different queens often produce bees of different sizes. We once had a queen, brought from the Holy Land by D. A. Jones, that pleased us in every respect, except that her bees were smaller than the average run of bees; and occasionally we have an Italian queen that seems to produce extra *large* workers. As there are no means, however, of measuring them with any kind of accuracy, except the looks of them as they are clustered on the combs or in front of the hive, it is a little hard to be positive in the matter. Another thing, we have not been able to see that the larger bees gathered any more honey than a hive full of small bees. Neighbor H., who was sitting by while I dictated the above, adds the following:

One spring he was very anxious to get drones from a particular queen, therefore he furnished her with full sheets of drone comb, and fed the colony up, so as to make a sure thing of it. The queen very obligingly went and put an egg in every drone-cell, and he was rejoicing in the prospect of an extra nice crop of drones. After the bees sealed them up, however, to his astonishment they were all capped like workers. Well, these worker bees were actually large around, but short and dumpy, much like drones, and he thought he had got a larger size of worker bees. About the time they were ready to fly, however, they looked just like any other bees. Their extra size of cradle produced no permanent difference in size. This is probably about the way it turns out with worker cells slightly enlarged.

KEEPING HONEY LIQUID THAT IS FOR SALE IN THE STORES.

MRS. HARRISON ALSO TELLS US SOMETHING ABOUT MAPLE SUGAR IN A KEG.

FRIEND ROOT:—I fully agree with Mr. Baldridge when he says: "It is my experience, that the price for extracted honey indicates, in the minds of consumers, both its purity and quality. A low price for extracted honey, or a less price than is asked for comb honey, is very apt to create distrust on both points." People have said to me, "I should think honey without the comb ought to be worth the most, because there is no wax in it." I have always said that I felt that my extracted honey cost the most. It is best that extracted honey should be sold in a home market, and direct to consumers, for this reason:

Those who buy it for table use want it ready for use. It is not to be presumed that they understand melting it so as not to injure it; and if they want honey on the spur of the moment, they say, "Can't have any now, it is all hard." So it goes on, and is not used. Had it been liquid, it would have been used up and the family would have bought some more; but no more will be bought while they have that.

It is something like this: A honey customer sold us a fifty-pound keg of maple sugar. He said he knew it was pure, for a friend of his in Vermont sent it to him direct from his camp (glucose had found its way to the camp, though). We were several years using that sugar, for it had to be dug out with chisel and hammer, and be melted before it was ready for the table. I said to a friend who bought a similar keg, "Used your maple sugar yet?" She said, "Oh, no! it's such a job to dig it out, and nobody will do it but me, and I can't spare the time." I suppose she has it yet, and it's of legal age to go to school.

We produce mostly comb honey, because we think it is less work, situated as we are. If I needed employment I would purchase extracted honey by the barrel, melt it, and put it into tin pails, and in a short time have a regular honey-route. If I found that honey, previously sold, had granulated, I would exchange liquid for it, and expect that it would be consumed when I came again, and the customer want some more. When extracted honey is produced in No. 1 order, that is, every kind kept separate, and well ripened, and delivered to the consumer in prime order, it should be worth the price of comb honey. Dark, mixed honey, with no distinct flavor, should not be offered to consumers for food, as it injures the demand.

Peoria, Ill. MRS. L. HARRISON.

Mrs. H., may be your maple sugar was adulterated with glucose; but the fact that it was so hard that it had to be cut out with a chisel and hammer is no evidence of this. As you describe it, I should infer that the sugar was poured into the keg while hot. This would be a nice way to ship it; but any maple sugar, when it gets real dry, would make just that kind of trouble. I should by no means think of digging it out with a chisel. Knock off the hoops, take off the staves, and put the keg, or such a part of it as you think proper, into a large dishpan or something else suitable. Add a very little water, and let the sugar melt slowly; then when you sugar it off leave it rather damp—that is, don't sugar it off so as to get dry and hard. In this shape you can dip it out with a spoon, without any trouble whatever; and at our house we think that soft maple sugar is ever so much nicer than hard cakes. Almost any maple sugar will get hard if the liquid portion be allowed to drain off. On one occasion we sent some little cakes of maple sugar clear to Connecticut. As it was in the summer time they got so dry and hard you could scarcely pound them up with a hammer. Well, now, these friends thought they ought to have damages because we sent them sugar too hard to eat. Had they given these little cakes one dip in water, and let them lie a few hours, the sugar would have become as soft as they pleased, without any trouble whatever. Even dropping water on a cake of sugar occasionally will make it just as soft as you want it. Our children like it best sugared off warm. Just put some of the hard lumps into a basin, with a very little water, and let it simmer slowly; then, just as you finish it, bring it to a boil, and you can have hot maple sugar any day of the year, without any trouble with hammer and chisel.

THE QUAKERS.

MRS. CHADDOCK ON DIFFERENT CHURCHES AND DIFFERENT RELIGIONS.

Let us hear the conclusion of the whole matter: Fear God, and keep his commandments; for this is the whole duty of man.—ECC. 12: 12.

MR. ROOT:—You say, on page 890, "Why do you say that she says it is because she is a Christian? That is, why do *you* not say instead that it is because she is a Christian?" Well, I do not say that, because I do not *know* it. Anna *says* it, and she is a sweet and lovely girl, *and a truthful one*, and I would not doubt her word on any subject. Oliver Wendell Holmes (I think it was) said that the time to begin a child's education is one hundred years before it is born; and perhaps Anna began being a Christian a hundred years before she was born; and if she did, she may have such a store of Christianity in her veins, in her bones, and in her brain fiber, that it helps her to bear all the ills of life without a murmur. You know, of course, that what Holmes meant was, that children inherit tendencies, and that a child of an educated stock would be more apt to learn than the child of illiterate parents and grandparents and great-grandparents. Anna Quillin comes of a religious stock, and all her tendencies are that way, and I believe that she feels what she says she does.

My religious education *did not* begin a hundred years ago, and it is impossible to crowd enough religion into me to make me bear calmly and trustfully all that Anna has to bear. If I had to lie in bed for eight years, I think I should be lying alone. No mortal could stay by me, I should be so "cantankerous." But I do not mean by this that I am destitute of religion. I think I have *some* religion, but I do not believe in the same creed that you do.

My mother's people were Friends (called Quakers). She married "one of the world's people," and was disowned for doing so. My parents moved to a new State, where there were no "Friends' meeting," and there my mother united with a people calling themselves "Disciples of Christ," I believe (I was a small child then), but they were called by the world "New Lights," and we went to that church till mother died. I was ten years old then, and we were *put out* to be brought up by neighbors or strangers. My lot fell in pleasant places, and among Christian people, the Friends. I was a stranger and they took me in; I was hungry, and they fed me; I was naked (almost), and they clothed me; and to this Christian people I owe a debt of gratitude that I can never pay. I went to their schools, I went to their meetings. I was always at their Sabbath-school and at their Bible-readings. I loved them. I think I was thirteen when I was taken into the society by request. This was the orthodox branch of Friends. My mother was of the Hicksite division. I remember asking aunt Ann Overman what the difference was between the orthodox and the Hicksite Friends, and she answered, laughingly, "The Orthodox believe that the 'old fellow' has horns, and the Hicksites believe he is a muly." Dear aunt Ann! she is now in heaven; but her good works live after her.

When I began teaching, at fifteen, I had to leave the Friends' neighborhood. There were only two schools there, and Friends' children are all educated, and most of them are teachers, and I went here and there wherever duty seemed to call me, till I finally landed in Illinois, among my mother's people. There was a small Friends' meeting here, with half a dozen members, but it was of the Hicksite branch, and it was so different from what I had been used to that I did not feel much at home among them. I liked them though. I have a respect for a tight silk bonnet and a big felt hat that nothing can ever take away. In teaching and changing neighborhoods I always attended whatever church was nearest, but they all seemed wild and ranting, and I wished that I had a good old Orthodox Friends' meeting to go to. For years and years I was homesick for the old Friends' meeting-house on the hill at Mississinewa. No other such Sundays have ever been, nor ever will be to me, as those spent in that old weather-beaten two-ended meeting-house. The old oak-trees around it were greener, the sky above was bluer, and the winds more balmy than they have ever been since. The old plank road was a royal highway leading past the burying-ground where generations of departed Friends lie buried, with the Mississinewa in sight, if we chose to look that way, and the cultivated fields and orchards on either side. On Wednesdays school was dismissed at eleven, and we marched two and two, the boys in one group, the girls in another, and took our places, "quietly and in order," in the meeting-house, where the fathers and mothers and householders had already assembled; and time and time again we sat in silence the whole meeting through, without a word being spoken by any one; *but the still small voice was speaking to each heart;* then the elder shook hands, and meeting was over, and we went out, not quite so "quiet and orderly," to our dinners and our play. It is of no use for me to try to tell outsiders what it was that I liked about those *silent meetings*. One who has never been there can not be made to understand it, so I shall not try. But I loved it well; and I would give twenty dollars (if I had it to spare) to go back there and sit for one hour and feel as I used to feel.

Some years ago I sent to that meeting for a letter, to be given to the Presbyterian church here. The Presbyterians received my letter, but—now here comes the rub—all Christians are going to the same heaven, and a church letter ought to be a legal tender anywhere, just as a gold dollar is; but it seems that it is not. The Presbyterian church said it would take me in on that church letter if—what? if I would be baptized with *water!* Now, *our* religion—our *orthodox* Friends' kind of religion—taught me that I need not be baptized of water, but of the Holy Spirit. Now, if I say that I believe water baptism is necessary, I shall tell a lie, because I do not think so, and I am not going to tell a lie for any church. I know that you have always talked to me as if I were an infidel; but I want to say now that I believe in religion, in churches, in prayer-meetings, and religious experience. Religion is a good thing. It seems to me that any thing that will take the swear out of a man, and make him stop beating his wife, must be a good thing, and religion did this for one of my neighbors, and it does seem as if religious people were happier, and felt more at home, than outsiders. It does not matter about creed—creed never saved anybody yet. I say, it does not matter about the creed, but I'll make a few exceptions. I'd rather not be a Thug in India, nor a Mormon in Utah. MAHALA B. CHADDOCK.

Vermont, Ill., Dec. 8, 1887.

May God bless you, my dear friend, for this little talk you have given us; and please forgive me if I have, in any of my replies, talked as if you were an infidel. I shall never do it any more, especially if you don't take back any thing you have said in the above. I know there are objectionable things about our sects and creeds; but you yourself have, in your concluding words, indicated that a line must be drawn somewhere. I have myself been many times tempted to think that it does not matter about the creed; but, where shall we draw the dividing line? Among the readers of GLEANINGS there are many different ones, and I fear they will feel hurt at what you said; but if Mormonism upholds polygamy, I should say it will have to be hurt and ought to be hurt; but I am told by some of the friends in Salt Lake that it does not. In any case, we have not time to discuss this question here. Well, is there a common ground where we can all meet? I think there is, and it is indicated in the text I have put at the head of your article. God's word says, the summing-up of the whole matter is to fear God and keep his commandments. I confess I never knew before what a Quaker meeting is. Now, I think I could enjoy a Quaker meeting with you, if it were not too long. I am something like Huber at morning prayers. He is an excellent boy when the prayer is not too long. I guess I could enjoy a Quaker meeting of fifteen minutes or perhaps twenty; and, to tell the truth, I believe that sermons of fifteen or twenty minutes, have, as a rule, done me more good than longer ones. Are you not a little hard on the Presbyterian church? I am not very well posted in these matters, for God has not called me to look closely into this matter of doctrine; but without consulting our deacons, I should say that, if some one applied for admission to our church who is leading a consistent life, and preferred not to be baptized because he felt, as does our friend Mrs. Chaddock, that he had been baptized by the Holy Ghost, in his own Quaker church, years ago, I should say, receive him into the church. Now, may be it would be a bad precedent; and may be my position is, on this point, an unwise one; but I don't believe it would do very much harm. God has called me, with all my strength and all my heart and with all my soul, to preach in my own way the religion that, as you express it, "takes the swear out of a man," and makes him stop beating his wife; but he has not called me to labor with people who do not think as I do about baptism, or about which day should be Sunday, and many other matters of similar import. It seems to me, my good friend, that almost all the world will be willing to stand side by side with you and me on this point. Then why not let us unite here and drop these other things that must be, to a greater or lesser extent, mere matters of opinion. "There shall be one fold and one shepherd."

SETTING BEES IN EARLY.

HONEY NOT ONLY STORED FASTER IN FOUNDATION, BUT OF SUPERIOR QUALITY.

YOUR remarks on why bees can store honey faster when furnished with foundation than when furnished with empty combs, were most interesting. One thing, it seems to me, should be emphasized; and that is, the quality of the honey is decidedly improved by the foundation process. Being so perfectly ripened, the smooth, oily taste so much craved would be present. Who would advise the same line in working for extracted honey? We are confronted with the same difficulty there, in a modified way. The cells are not so deep, but too deep for the current of air to pass "close to the surface" of the first nectar deposited; and has not extracted honey taken from new combs been found richer in flavor than that taken from old combs, even though both were capped over? This is a large subject, and should be amplified through GLEANINGS.

My bees were humming merrily yesterday. I placed my thermometer on the south side of the honey-house, and it soon marked 95°. Your "zero weather" made it quite plain to you that Mr. Doolittle had "hit it this year." This 95° weather makes it quite as clear to me that he would not have made an egregious blunder had he left them till now. To-day seems quite as pleasant as yesterday.

Lawndale, Ill., Dec. 8, 1887. F. C. BLOUNT.

Friend B., I think you are very likely right, and that our extracted honey would be better if stored and ripened in combs with shallow cells. We can secure this by having the combs quite close together.

HOW MANY COLONIES TO THE SQUARE MILE?

FRIEND FRANCE RECONSIDERS THE SUBJECT DISCUSSED ON PAGE 816.

IN Nov. 1st. GLEANINGS, page 816, friend Porter introduces the inquiry as to how many bees can be kept profitably on one square mile, and that without regard to the range inside of the mile. As he puts it, the bees are not confined to one square mile, for he says the bees may be put at the corners of the mile. In that case a very small proportion of their produce comes from the one square mile. We all know that bees do range off away from home for from one to five or six miles, to gather honey. If they can not do better they will fly six miles to gather honey, and that over a lake five miles wide, without a chance of stopping on the way to rest. Now, if bees go five miles each way from the center mile, then we have 11 miles square, or 121 square miles. That looks like a big pasture for the bees that are on our one square mile of ground. Now, if there are no other bees kept nearer than ten miles of our bees we should have the range to ourselves. If the pasture is all good, perhaps we could keep 1000 colonies on the one mile square. But divide the 1000 colonies by the 121 square miles of the range, and we have a fraction over 8 colonies to the mile. But, how far do bees fly, on an average, to gather honey? In my opinion, very few go more than two miles when honey is plentiful. Say they go two miles. In that case, the bees located on the corners of the one square mile would have 25 square miles to pasture on. Take the average of the country about here, 200 colonies would be as much as I should think profitable for that range. Here, again, we have eight colonies to the mile. We are keeping 500 colonies of bees here, divided into 6 apiaries. They are far enough apart to give each apiary a range of 16 square miles, which gives us a population of about 5¼ colonies to the mile, and we think we are stocked heavily enough. I should like to hear from other large honey-producers on this subject—how many bees they have, and about how large a range they cover.

We are all well aware, that there is a great difference in location. Take the land here in my locality, and there is not over one-fourth of it good bee-pasture. All the good tillable land is plowed up, and used to raise farmers' crops which do not produce any honey. Then there is perhaps another quarter of the land covered with timber, with no basswood or any honey-bearing trees. White clover and basswood are our main dependence. We never get surplus from any other source. I am very well aware, that there are many locations far better than mine in which to keep bees.

In closing my remarks on the subject of how many colonies to the mile, I just want to say that the remarks that were placed under Mr. Porter's article (referred to above) caused a very perceptible smile. I don't know who wrote those remarks, but I suppose it was our much-respected uncle, A. I. Root. It struck me that he must have had a very slow horse, and it took him a long time to get around that one square mile, for he came to the conclusion that it was a large tract of country, big enough to place 50 colonies of bees on each corner, and then have room in the middle for 50 more. I would not put the 50 in the center, but, rather, divide them up and add them to the corner apiaries. They would thus have an equal chance with the others, and then I think it would depend a great deal more on what covered the surrounding country for two or three miles out, then it would on what covered those 640 acres. If one were raising queens to sell, your arrangement of 250 colonies (or nuclei) on a square mile, perhaps, would do, if they were fed stores to winter on, and the nuclei were doubled down to about half to winter; but handling large colonies of bees, for the purpose of a profitable honey crop, is another matter. We want room, and plenty of good pasture.

Platteville, Wis., Dec. 15, 1887. E. FRANCE.

Yes, friend F., it was A. I. Root who wrote that about riding around the square mile; and I want to inform you that a square mile is a good big slice of ground. I suggested putting 50 colonies in the center, because, when we arrange fruit-trees, cabbages, or even bee-hives, in the form of a square, there is always more or less vacancy in the center of the square. On this account a triangle would be much better; but our roads are seldom laid out so as to form a triangle, let alone the measuring of a mile on each side. If this square mile were covered with alsike clover I do not believe that 250 colonies would be enough to gather the nectar during a good season; and if it were covered with a dense growth of basswood, it seems to me it might take a thousand colonies to gather it all. While I think of it, I should very much like to see the experiment tested, of a square mile of basswood-trees, and nothing else. Perhaps there are localities where the other timber could be cut out, so as to leave only basswood for the bees; and I believe I would give more money for such a honey-farm than for any thing else that has been suggested. Who knows but that it may be done in the next hundred years? We have bee-men now who have capital enough to undertake the matter, if they felt so inclined.—I may mention to our readers, that, with the above letter, came an excellent photograph of our friend France; and I may add, that he is a fine-looking, gray-headed old gentleman. May be we shall give you his picture in a few days. I am very glad to have him take Uncle Amos to task whenever he gets astray in his figures.

HEADS OF GRAIN
FROM DIFFERENT FIELDS.

THE ALLEY TRAP AND ITS PROPER USE.

I SENT to you and got an Alley drone-trap, and used others of my own make. This is the way the bees worked: The swarms would come off four or five at a time. They would alight and hang anywhere from one to five hours, then go back perhaps into one or two hives. They would keep this up for a week or two, then in the fall I would find these hives queenless. Did they kill the old queen and try to raise a young one, and, finding she could not come off, kill her? You see, they could not swarm nor come out to get fertilized, and when they ought to have been making honey they were fooling in this way. I have 123 swarms, and do not wish for more. Do they act in that way where the Alley trap is used? What would the friends advise me to do? E. S. DeKalb.

Raceville, N. Y., Nov. 30, 1887.

The Alley drone-trap will not prevent swarming. It is designed only to prevent the swarm from absconding with the queen in the absence of some one to hive them. Just as soon as the swarm is well in the air, and the queen has got into the "up-stair" apartment of the trap, place the latter with the queen among the flying bees, and hive them as you would ordinarily do if the queen were confined in any kind of a cage. In other words, the trap is simply a matter of convenience. Bees will swarm just the same with as without it, only it prevents them from taking their queen and absconding with her. If the trap be left on, and a colony makes several unsuccessful attempts to get away with their queen, they will be quite sure to kill her. No other cause can be assigned for this than that they regard her as of no further use for the well-being of the colony, because she will not swarm out with them. Accordingly, they reason that she must die, and her place be supplied with one which will swarm. Of course, the queen is in no way at fault, but the bees think she is. *They* can get through the trap, and can not understand why *she* can not. After the bees have made one attempt, the object of their desire should be gratified as soon as possible, and the trap should not thereafter be left on the hive. Of course, the young queen could never be fertilized with the trap still remaining attached to the hive.

$400 FROM THE BEES.

My bees did very well this year. I have sold $284.19 worth of honey up to date, and shall have enough to run the amount up to $400. I do not keep the amount of honey taken off, but the amount of money received, or its equivalent. I commenced with 40 or 41 in the spring, and have increased to 80, all in good condition.

PEDDLING HONEY A SUCCESS.

About a month ago I loaded my two-horse wagon with honey, provisions, and horse-feed, and started out to sell honey. I went to an adjoining county and neighboring towns. I was out three nights and four days. I came back with $104, mostly in silver. The weather was very pleasant, and I enjoyed the trip and camping out better than any thing else I have been engaged in for a number of years. I also took with me a dozen or more back numbers of Gleanings, which I gave away and threw into the yards of persons where I saw bee-hives. I said a great many good things about you, because I feel that it is due you from me. My success with bees is attributable to the publication done by you.

Dodd City, Tex., Dec. 1, 1887. J. H. Roderick.

INTRODUCING VIRGIN QUEENS BY TAKING AWAY BROOD AND LARVÆ.

Mr. Root:—As you have requested to hear from queen-rearers generally in regard to "introducing virgin queens," I give my method. From what experience I have had I do not like caging queens over frames, especially *young* queens. They seem to want their liberty. I have often found them dead when I would go to liberate them after two or three days' confinement. A strong nucleus will often start cells if it has eggs and larvæ, when the queen is caged on top, or between the frames. When cells are commenced they will usually kill a young queen when liberated, for she will be weak and timid. The bees will soon inform her she is not needed, generally by balling her.

I have tried many ways of introducing, and have succeeded best with this method. When taking laying queens from a nucleus I take the frames containing eggs and larvæ to another hive. The next day giving them a virgin queen or a hatching cell. The bees find they are queenless by this time, and, having no way to raise another, will gladly accept any kind of queen. In this way I do not lose the use of my nucleus long. The young queen, by having her liberty to travel about the frames, becomes strong, and better fitted to fly. I seldom lose a queen by this way of introducing.

MRS. OLIVER COLE.

Sherburne, N. Y., Dec. 6, 1887.

Your plan will almost always succeed, I am well aware, my friend; but the objection to it is the loss of time it takes. You will notice that, in the A B C book, we advise letting the newly hatched queen right into the hive, without taking away any thing; and our losses are so few, especially where we wait until next day, as you recommend, that we think it cheaper to lose a queen once in a great while than to go to the trouble of taking the brood away. If we can get a queen within a few hours after she has emerged from the cell, we have found very little trouble in putting them where we wish, even into a hive that contains a laying queen. In the latter case they will often be allowed to run about for several days.

SORGHUM-MILLS AND BEES.

My bees average about 45 lbs. of honey to the colony. One ran over 100 lbs. One gave no surplus, but put some 60 lbs. in the brood-nest. The separators I bought of you last summer I used, and consider it a great improvement, as I have been greatly troubled with bulged combs. I use single-depth caps, 28 sections in one hive, and 30 in the other. I tier up, and can show my neighbors the superiority of this method, as many of my acquaintances with 10 to 16 hives frequently fail to obtain sufficient for their own use. I manufacture sorghum molasses in the fall, having a run of ten to twelve weeks, and a portion of this fall my crusher and also my evaporating room were well nigh covered with bees. I was wondering if they could or did secrete honey from the juice or syrup. What do you think? I could see no evidence in their hives.

Assumption, Ill., Oct. 25, 1887. W. N. ROOT.

Friend R., the bees will fill their combs, and may fill their hives, with what they gather from your crusher, etc.; but it will be sorghum syrup, and not honey; and if I am not mistaken you will find it very bad stuff to winter on. We shall be glad to have your report in the spring; and tell us if you don't find it bad for wintering-stores.

ENTRANCES TURNED TO THE SOUTH.

Will bees in hives, with the entrance turned to the north, do as well as if the entrance were turned in some other direction? A. F. FIELDS.

Wheaton, Ind.

Friend F., we had a good opportunity of testing this matter when using the house-apiary. Half of the entrances were turned to the north and half to the south. Now, there were certain times in the spring when the weather changed suddenly, while the bees were out of their hives, say during maple blossom, when the bees on the north side were, many of them, lost in trying to regain their hives; whereas on the south side they got in all right. But it is also true, that there are special times in the winter when the bees on the south side are tempted to fly out, and hence get lost in a light fall of snow, while those on the north side remain quiet. So you see there are advantages and disadvantages. On the whole, I should say one pretty nearly balanced the other. Where there are but few hives, however, and where they are placed a good way apart, I should rather prefer having the entrances toward the south, although I do not know that it makes any material difference. Some way it always seems pleasant to see them clustered out around the entrance, to get the warmth of the sun when the weather is cool; but I am not sure they do any better with us.

BROOD CARRIED OUT.

One of my hives is rather weak, owing to the old bees destroying all the first brood. I could assign no reason for this, so I turned to my A B C, and found that you said this state of affairs was caused by moths; but no trace of moths was found in the comb. Something was wrong, I knew not what.

ALSIKE.

How does alsike clover grow, compared with red clover, on the same kind of land? How does it stand drought? Of what value is sweet clover, more than for honey? R. H. GUTHRIE.

Powhatan, Ark., Dec., 1887.

Friend G., I can think of no reason why the bees should destroy the brood, unless they have been driven to it by starvation. Have they not, at some period, been clear out of stores? Where the larvæ are starved they will die; and a heavy flow of honey coming soon after would present just the state of affairs you mention.—Alsike clover is very much like the red in its habits. It stands drought just about the same, so far as my information goes.

GRAPEVINES AROUND THE HIVES.

How can we best keep down weeds in a grapevine apiary? If we mulch them, are we not likely to set the mulching on fire with our smokers? And if we cultivate the vineyard, it would be rather muddy when it rained, and when the frost comes out. What about the Niagara grape? Does any of the bee-men cultivate it? What can they be bought for?

J. S. WILLARD.

Bedford, Taylor Co., Iowa, Dec. 8, 1887.

Friend W., we use a lawn-mower and sickle to keep the grass down. To get a good growth of vines we occasionally dig up the turf, and then work in some ashes and bone dust. In this way we have secured fine crops almost every year. We have a Niagara vine, but it is a very slow grower with us. At the horticultural convention in Saginaw, some immense clusters of the Niagara grape were on exhibition. The bunches are not only large, but the berries are squeezed in so tight together that the bunches feel like lead. The grape is almost equal to the California raisin grape, in sweetness and flavor.

JAPANESE BUCKWHEAT.

3½ BUSHELS FROM TWO LBS. OF SEED.

HERE is my report of Japanese buckwheat: I bought 2 lbs. of you, sowed it the 25th of July. I got 3½ bushels of nice clean buckwheat. I wasted some in handling.

JOS. GRIFFIN.

Rio, Albemarle Co., Va., Dec. 7, 1887.

22 LBS. OF JAPANESE BUCKWHEAT FROM ¼ LB. OF SEED.

I purchased ¼ lb. of Japanese buckwheat of you, and I have 22 lbs. of nice clean buckwheat. The bees worked well on it; and if all is well, I will sow six acres next year. J. M. KINZIE.

Rochester, Oakland Co., Mich.

11 BUSHELS OF JAPANESE BUCKWHEAT FROM 4 QUARTS OF SEED.

I had 4 quarts of Japanese buckwheat, which I sowed on poor ground. I got a big growth of straw, and 11 bushels of buckwheat. It did a great deal better here than silverhull. Bees worked on it just as well. Sixty pounds of Lester's celebrated ground bone was used. CHARLES M. UNDERWOOD.

Otego, Otsego Co., N. Y.

EVERYBODY WANTS SEED OF THE JAPANESE.

I want to tell you of that Japanese buckwheat. From 3 lbs. purchased of you, with no extra care, and on poor ground, I harvested 420 lbs. of recleaned buckwheat. Everybody who sees it wants some for seed. I do not think the hot weather hurts it any. This was the poorest season for buckwheat in many years in this vicinity. F. W. DEAN.

New Milford, Pa.

JAPANESE BUCKWHEAT SUPERIOR TO THE SILVERHULL.

I will say of the Japanese buckwheat purchased of you, that, owing to the very dry weather, but very little of it came up; but what did come, made a good growth and yielded heavily, while the silverhull variety did not mature a single grain, and it had as good a chance as the other. I can not say as to its honey-producing qualities over any other, as I was unable to find a bee working on either kind. If it does yield nectar it will no doubt be better than any other variety, owing to its bearing such a profusion of blossoms. M. W. SHEPHERD.

Rochester, O., Nov. 12, 1887.

It is a little singular, friend S., that in so many cases bees have neglected to work on buckwheat during the past season. They have paid but little attention to it with us, and it was certainly not because they found forage elsewhere.

BEES BOOMED ON THE JAPANESE BUCKWHEAT.

I noticed you want reports from those who have tried Japanese buckwheat. I would state that, from 3¼ lbs. I purchased of you last spring, I have three seamless sacks *full*. I sowed the 3¼ lbs. on about ¼ acre. I sowed it the first of June, and it came up nicely; but a month without rain kept it back, so when it was six inches high it began to blossom. Just then it rained, and rained frequently after that, so it grew over 2 ft. high, and *many* stalks were over half an inch through. It ripened unevenly, some ripe and shelling off before I cut it, and some yet immature when cut, and much carried off and buried by gophers. Bees boomed on it every day till eleven o'clock, except when raining. Grain was as nice as that we sowed. I can not compare it with other kinds, as this is all that has ever been raised here. I shall sow twice (early and late) next year. ANDREW CRAIG.

Empire, Butte Co., Dak.

JAPANESE BUCKWHEAT AND RAPE.

I sent to you for a sample of Japanese buckwheat (4 oz.), Aug. 6th. I planted a spot 4 x 24 feet, and gathered 1¼ lbs. from it. Was that a good yield? At the same time, I planted a little more land in rape-seed (of friend J. H. Ellis, who got it of you). The rape is still in full bloom, and the bees are busy on it. I think my bees will be in good condition for winter. J. M. HARRIS.

Cedartown, Ga., Oct. 22, 1887.

We should be very glad indeed to get more reports in regard to rape, both in regard to the value of the seed, and for honey.

NOTES AND QUERIES.

BEES KNOW COLORS.

I HAVE had about the same experience as Mr. R. Robinson. I allow my chickens to run about among the bee-hives as they choose. Sometimes one gets stung. Last summer, among the six hens attacked by the bees were four black ones and two dark-colored. We keep about 40 chickens, and most of them are light-colored, some white.

This has been a very poor season. I started last spring with eight colonies, of which I divided four; three of the rest did not make any surplus at all. I bought six colonies. Colony No. 10, with a select queen from A. I. Root, made 103 lbs. of extracted; colony No. 4, 97 lbs.; colony No. 14, 102 lbs.; colony No. 15, 107 lbs.; colony No. 9, 45 lbs. comb; colony No. 12, 36 lbs. of comb, etc. I have to report, 99 lbs. of comb honey and 636 of extracted. I have 18 strong colonies. PAUL PEINE.

Martinsburg, W. Va., Dec. 21, 1887.

THE EXTRA FRAMES AFTER CONTRACTION.

When contracting to secure comb honey, what is done with the extra space, or how are the bees kept out of it? HENRY WILLSON.

Clinton, Ill.

[The extra frames are given to nuclei, or are placed in the upper story of a strong colony. The space left after contraction is filled with dummies, or division-boards designed for that purpose. See A B C of Bee Culture or any of the recent text-books, for further particulars.]

FOUL BROOD; MORE OF IT IN OHIO.

I have been fighting foul brood for two seasons, the worst way; but I will not cry " enough " until I am whipped, and then I will tell you. I do not try to save any thing but the bees; for if I do it keeps breaking out. I have been spraying with a solution of carbolic acid this season, with better results.

Hudson, O., Sept. 9, 1887. E. B. BLACKMAN.

[Friend B., I am very sorry indeed to know that you have foul brood so near us. I had hoped there was comparatively little of it in the State of Ohio. Do you mean the disease keeps breaking out when the hives have been boiled or scalded?]

THE SIMMINS NON-SWARMING SYSTEM.

I should be glad to hear reports from those who have tried Simmins' non-swarming system, or plan of placing a story filled with empty frames or starters below the brood-nest when running for extracted honey, with one or more stories of empty combs above. Is it a success? H. P. LANGDON.

East Constable, N. Y., Nov. 21, 1887.

[Friend L., there is very little difficulty in preventing bees from swarming where we are running for extracted honey; but I think the empty space would do more good above the brood-nest than below it. I believe that storing below the brood-nest has been but little practiced in America.]

BONESET HONEY FOR WINTERING.

Will bees winter all right on boneset honey, well ripened and sealed over? **C. E. Hardesty.**

Connotton, O., Oct. 29, 1887.

[Friend H., I believe the general decision has been that any of the honey gathered from fall blossoms answers all right, if ripened and sealed over. Some reports have, in certain seasons, seemed to indicate that fall honey is not equal to basswood and clover; but at other times many reports seemed to indicate no difference. If the honey seems good and *ripe* to the taste, I should not have any anxiety in regard to it.]

Bees have done but little this year, owing to extremes of weather—wet, cold, dry, and hot. Last fall we had 80 colonies. During winter and spring we lost 35. From the remaining 45 we have taken about 200 lbs. of honey, mostly extracted. We had six swarms only, all in the month or August.

J. M. Harris.

Cedartown, Polk Co., Ga., Oct. 22, 1887.

REPORTS ENCOURAGING.

FROM 9 TO 20, AND 1290 LBS. OF HONEY.

I COMMENCED in the spring with six colonies. I bought three more in May, and transferred from box hives, making 9 in all. I have taken 1040 1-lb. sections and 250 lbs. of extracted. I have increased my stock by natural swarms (except 2 nuclei which I united and built up to a good strong colony) to 20, all of which have plenty to winter on. I had five swarms come out in September from the 5th to the 10th. I fed them a little. We got no surplus in July or August; but about the 3d of September they commenced again with a rush, and continued until the 1st of November. On the 5th of November we took off all surplus arrangements and fixed them up for winter. They still get a little honey, but very little from aster. I extracted all unfinished sections, and put them away for spring. Besides the honey taken, we sold 40 lbs. of beeswax.

PUTTING BEES ON A RAFT DURING AN OVERFLOW.

I have been thinking of moving my bees to the east side of the Mississippi River. I have a good place for bees where I am, only we are overflowed with water every spring from 2 to 4 feet deep. You may wonder what we do with the bees during the high water. Well, as I have had only a few I have made a raft of large logs and kept them on it during high water, and let them float, keeping it stationary; but if I had 100 or more it would be quite a job, I fear. **R. J. Mathews.**

Riverton, Miss., Nov. 14, 1887.

Friend M., it seems a little singular to get a report like the above, for the past year of drought. Very likely the abundance of water you speak of had something to do with the good yield of honey.

Bees did very well this year. I got 1000 lbs. of honey, and left plenty for winter. **G. A. Dunbar.**

Salt Lake City, Utah, Nov. 22, 1887.

GROCERS BEGGING FOR HONEY.

I delivered a case of honey (46 lbs.) to a grocer in Springfield, at 18 cts. per lb. the other day. It is the first time I have obtained that price since 1882. I have been keeping most of my crop for the accommodation of my home customers, and I told this grocer that I would rather not sell to him at all under the circumstances; but Springfield is almost barren of honey, and he begged hard for it, though not without a struggle to bring me lower.

Geo. F. Robbins.

Mechanicsburg, Ill., Nov. 13, 1887.

Why, friend R., why didn't you charge 20 cts. for your honey? You will see by our market reports that it is worth 18 cts. at wholesale, almost everywhere.

MY FIRST REPORT OF BEES.

Last spring I had eleven colonies, some of them strong in bees, and some rather weak. I increased to 20 by natural swarming. I took 70 lbs. of extracted and 30 lbs. in 1-lb. sections. I Italianized what hybrids I had, and did it successfully.

William Pickett.

Deming, Hamilton County, Indiana.

FROM 25 TO 54, AND 1125 LBS. OF HONEY.

My report for the season of 1887 is as follows: Colonies, spring count, 25. Colonies, fall count, 54. Comb honey, 250 lbs. Extracted honey, 875 lbs. Total, 1125 lbs. I have enjoyed my bees much the past season; but now that I have changed my business and moved to the city, I shall have to sell my pets—at least the most of them, as I can not attend to more than one or two hives; but I value GLEANINGS, and consider me a lifetime subscriber.

Fort Smith, Ark. **W. H. Laws, 25, 54.**

AN AVERAGE OF 85 LBS. PER COLONY.

Our honey season is at an end. My report is, spring count, 16 colonies, 12 of which were strong. I increased by natural swarming to 24. I averaged per colony, spring count, 85 1-lb. sections. While this is not a very large report, it is quite good considering the care given them. I use Simplicity hives, 10 frames, with 7 wide frames in the upper story. I neither reverse nor contract. When the lower story is full I place an upper story on, having 56 sections, and look at them once a week. When full I remove and put on empty ones again. My time is so occupied that I give very little attention to the bees.

THE FIRST HONEY OF THE SOUTH; WHERE SHALL IT COME FROM?

I think my apiary is located the furthest south of any apiary in the U. S. that is run for comb honey olone. My latitude is about 27½°, and I get no surplus honey for market before April 23d, and then from gallberry. **S. C. Corwin.**

Sarasota, Fla., Dec. 14, 1887.

Well, friend C., I am a little bit surprised at this; but is it not possible that somebody further north than you are gets honey before you do? I think we have had, in our back numbers, reports of honey in March, from somewhere in the South; and I can remember several seasons when bees gathered honey from soft maples in March in our locality. Of course, this would not be enough to be called surplus. Suppose, when you get your first honey from your hives, either comb or extracted, you let us know about it, and we will give you an advertisement of it free of charge. If anybody gets in ahead of you, of course he will have the same privilege.

18 TO 30, AND 300 LBS. OF HONEY.

I commenced the season with 18 stands, increased to 30. I sold 4 and doubled back to 24, and got about 300 lbs. of comb honey, and my bees are in good condition for winter. We had a poor honey flow from white clover. Too cold at nights, and too wet in the first part, and then too dry. But basswood came in and helped us out, and we think that we did well this season. I mean by *we*, myself and the queen of the house. You see we are in partnership. We sold our honey at 20 cts.

Now, a few words in regard to filling orders. I have been in the bee business on a small scale for three years, and most of that time I have got my frames, sections, etc., from you, and my orders were always filled just the way I ordered the goods, and every thing came in good shape, and made out of the best of material. I shall need more material next summer, and, of course, A. I. Root will get my orders as long as he does as he has done in the past. C. E. HARDESTY.

Connotton, O., Mar. 28, 1887.

NO CAUSE FOR COMPLAINT.

I started in the spring with 60 colonies, mostly hybrids. They built up strong by the first of April, and were ready to swarm; but about that time a real Texas northern struck here. The weather was cool a good while afterward—just long enough to stop the honey-flow. The bees killed off the drones at once, and swarming for the time being was given up. May 5th, linn was in full bloom, and the regular surplus honey season was upon us, therefore I used the extractor freely, and did not have any increase at all this season. I have taken 160 gallons of honey, and have had no fall crop on account of a dry summer; and when rain did come, all fall flowers bloomed; but they bloomed out of season, and did not have any honey in them; therefore I conclude that flowers blooming out of season have no honey. My honey is all sold, and I could fill only half the orders that were sent me. Net proceeds in money, $300. I have no cause for complaint. J. W. ROSS.

Phair, Texas, Nov. 11, 1887.

300 LBS. OF FALL HONEY.

I wintered my bees in the cellar. They came out in the spring heavy in honey and bees. Only one was queenless which I lost. They bred up early on the honey they had. Fruit, white clover, and basswood bloom were nearly failures with me. The first week in July I examined them and found them nearly destitute of honey or brood. I bought 140 lbs. of brown sugar, made a light syrup, and mixed it with some three gallons of dark extracted honey, and fed this to stimulate them to breed up. The last week in August I went through each colony, on Mr. Doolittle's plan. I found them to contain from 1 to 30 lbs. of honey, and plenty of sealed brood. I bought 430 lbs. of granulated sugar, made it into a heavy syrup, and fed them to make each colony contain 25 lbs. of syrup and honey. I finished this feeding for winter the last week in August. About this time my bees began bringing in some honey from buckwheat and other fall bloom. I received about 300 lbs. of very good fall honey.

ONE STALK OF THE JAPANESE BUCKWHEAT YIELDED 1275 GRAINS.

The 10-cent package of Japanese buckwheat you sent me did very well, considering the hot dry weather. I harvested one peck of nice plump seed from it. One stalk I shelled by itself. It yielded 1275 grains W. HILL.

Prophetstown, Ill., Dec. 5, 1887.

OUR QUESTION-BOX,

With Replies from our best Authorities on Bees.

All queries sent in for this department should be briefly stated, and free from any possible ambiguity. The question or questions should be written upon a separate slip of paper, and marked, "For Our Question-Box."

QUESTION NO. 25.—*Are sections open on all sides preferable to those open at the top and bottom only?*

Yes. DADANT & SON.

No. GEO. GRIMM.

So far as my experience has gone, I think not. C. C. MILLER.

I think not, but am open on all sides to conviction. E. E. HASTY.

I should think they were, but I have had no experience with such. A. B. MASON.

I have never used sections opening at the sides, and probably never shall. W. Z. HUTCHINSON.

I have never used them, but I think they would do well when separators are not used. PAUL L. VIALLON.

I use those open at top and bottom only. Many think those open on all sides preferable. G. M. DOOLITTLE.

I never used any, but I think not; unless tiering up, I should prefer them open only at the bottom. MRS. L. HARRISON.

I have had no experience with sections open on all sides, but am much interested in the subject. O. O. POPPLETON.

No. I tried a few, and never want any more. The objections to them far outweigh the advantages. J. A. GREEN.

I have used sections open all around but little. I saw no special advantage. Perhaps with more experience I should think differently. A. J. COOK.

I think not; although I have not experimented in that line, I am pleased to go on record as saying that I now believe that open-side sections will never be used to any practical extent. JAMES HEDDON.

Sections open on all sides are primitive. They witnessed our first attempts, thirty years ago. Sections open on top and bottom, with their sides extending, for the protection of the honey in transit, are late and valuable improvements. CHAS. F. MUTH.

Dadant & Son say yes; but George Grimm says no. Now, the Dadants have, without question, made some experiments in regard to this matter, and very likely some pretty thorough ones; and we urgently request them to tell us all about it. It is certainly an important matter. We should also like to have friend Grimm give us his reasons for saying no.

QUESTION NO. 26.—*What width of section is best to use when separators are dispensed with?*

1¾ or 1⅞. DADANT & SON.

Perhaps 1½ inch. C. C. MILLER.

Seven to the foot. W. Z. HUTCHINSON.

I am no authority on comb honey.
R. Wilkin.

Seven to the foot, 1¾ inches scant.
James A. Green.

Those of about seven to the foot.
Mrs. L. Harrison.

I do not know, for I always use separators.
Dr. A. B. Mason.

I think mine are a little less than two inches.
Geo. Grimm.

Not over 1¾ inches, and probably ⅛ or ¼ inch less would be better.
O. O. Poppleton.

I don't think it advisable to dispense with separators. I prefer two inches in width, with separators.
G. M. Doolittle.

I have never had perfectly satisfactory success without separators, with any width. Without separators I should prefer seven to the foot.
A. J. Cook.

I got the best result with sections 1½ in. wide, although the 1¾ or 7 to the foot did well; but none will do as well as when the separators are used, and for that purpose the 1⅞ is the best, giving more space to the bees.
P. L. Viallon.

When left to themselves, bees build their combs about 1⅜ inches thick. The best width of sections to be used without separators would be, therefore, 1⅝ to 1¾ inches. We get straighter combs and more honey by favoring the natural inclination of the bees.
C. F. Muth.

Seven to the foot has many voices in its favor, I believe; but unless you *know* you can succeed without separators, let that whole job out. Moreover, the steady thinning-down of our combs looks just a trifle to me like a desire to sell less than a pound for a pound.
E. E. Hasty.

I use and prefer sections one seventh of a foot in width. I coined the term "seven to the foot" some years ago. Although it seems to be theoretically false, after much experimenting I have found it practically true that this width is the best to use, both with and without separators.
James Heddon.

It would seem from the above, that the majority are rather in favor of something pretty nearly seven to the foot, especially if no separators are to be used. Our orders during the past year or two have a pretty strong bearing on this very subject; and I should say that, out of orders for about a million sections, as many as nine-tenths have been for a width of $1\frac{15}{16}$. Perhaps this is greatly owing to the fact that they were first started of this width, and that so many of the friends have so many of their appliances exactly suited to them. It is indeed very important that we decide what width is best; that is, if something a little narrower than $1\frac{15}{16}$ is better.

Question No. 27.—*Do you prefer the dovetailed four-piece section, or the one-piece V-groove?*

The four-piece. W. Z. Hutchinson.

The dovetailed. Mrs. L. Harrison.

The four-piece. Dadant & Son.

I use nailed sections. G. M. Doolittle.

The one-piece V-groove E. France.

I much prefer the one-piece V-groove.
Dr. A. B. Mason.

One-piece V-groove. C. C. Miller.

After trying both thoroughly, I very much prefer all dovetail four-piece. James Heddon.

I am not very particular; but if as nice I think, the one-piece suits me rather the best.
A. J. Cook.

The one-piece V-groove, even if it costs double the amount of the four-piece section.
Paul L. Viallon.

Neither. I much prefer what is called the two-piece section, such as G. B. Lewis manufactures.
O. O. Poppleton.

My order of preference on sections is, first, the nailed section; second, the one-piece; and, last, the four-piece dovetailed. E. E. Hasty.

Sides and bottom in one piece, with top separate, and dovetailed in. The section is firm, and you can see at a glance which is top or bottom.
Geo. Grimm.

The one-piece V-groove. In some of my cases I use a two-piece section which has nearly all the advantages of the four-piece, and is more convenient. The one-piece section, as made, is not well adapted to use without separators. James A. Green.

The four-piece sections are of the primitive order. The fact of their being dovetailed makes them too limber. They are held in shape by the strength of the honey. The V-groove one-piece sections merit the preference every time. They are substantial and a good protection for the honey, as it should be. Besides this, three or four can be put up to one of the former. Chas. F. Muth.

The above report is really a curiosity. Our friend Viallon says one-piece, even if they cost double the amount; and our old veteran, Muth, calls the four-piece primitive; C. C. Miller and Dr. Mason also say one-piece; then follow Heddon, Hutchinson, Mrs. Harrison, Dadant & Son, all in favor of the four-piece. Surely, when doctors disagree, who shall decide? We might give the above as an illustration of the difference of opinion; but it can not be that. I am rather inclined to think that some of the brethren have been disgusted with poor workmanship. If a man should have some poorly made four-piece sections, and next time get some nicely made one-piece ones, he might fail to consider the difference in workmanship; or, if you choose, just the other way. I know a good many of the friends stick to the four-piece sections, because they say the one-piece are liable to break; but my experience is in favor of the one-piece for this very reason. Some claim, also, that the four-piece, when pressed up square, will stay exactly square; whereas the one-piece will not; therefore the four-piece are better adapted to hives of such construction, if the hive itself or the case itself does not hold the section square. It seems to me there is something wrong, friends, when men of large experience decide so differently in regard to a plain, simple matter like this. In regard to demand and supply, I might say we sell three times as many one-piece sections as we do of the four-piece ones; but I know there are other manufacturers whose orders run just the other way. Perhaps, however, they do not make any thing like the quantity that we do.

MYSELF AND MY NEIGHBORS.

Great peace have they which love thy law, and nothing shall offend them.—PSALM 119: 165.

I HAVE before mentioned, that, when called to leave home, I did not want to go. I preferred to stay at home and look after our affairs in a way, as it seemed to me, every prudent man should do. But another voice seemed to say that I had duties besides home matters; that my fellow-men wanted me, and had a right to what assistance I could give them. Therefore I went away, even though it were somewhat under protest. I do believe, as I have often told you, the thought conveyed in our text, that they have great peace who love the law of God. Somewhat contrary to my expectations, however, I did not feel blessed in doing my duty so much as I have at other times when I make sacrifices for the sake of others, and when I take up disagreeable tasks that I know I ought to do. I have learned by experience to expect, sooner or later, a sort of reward. This reward is a kind of peace and quiet happiness that comes into my heart now and then while I am busy trying to obey God's commands. Well, I longed for the time to come to start homeward; and the nearer I got to home, the more anxious I felt to get there quickly. Our branch road that strikes off at Elyria does not always connect with the Lake Shore. I tried to get the conductor to telegraph ahead to have them wait a little for me; but he either did not know any thing about our branch road or did not care any thing about it. In the morning no one was around but the porter, and he assured me very positively that they always found the train waiting for them at the crossing. He was a good deal more positive after I gave him 25 cents for blacking my boots and brushing me off. He placed his stool at the side of the steps for me to get down, and bade me good-by with much style and ceremony, but forgot to mention the fact that my train had been gone about fifteen minutes. I told the depot agent that I *must* get to Medina. He said I would have to wait until night. I told him I thought I would not. He directed me to the telegraph operator, to see if I could get a permit to go on any of the coal or freight trains; but he added that they had shut down on everybody, and did not make any exceptions. The operator wired them at headquarters, but they replied they could not do any thing for me. The nearest livery-stable was about a mile away, and I started to go there on foot; but the operator suggested that he could telephone them. A great many times I have scolded people because they don't take advantage of the facilities afforded them; but there I was, ready to walk two miles, when the telephone was right in plain sight. The livery man answered that it would cost $2.00 to take me to Grafton, or $6.00 to get me to Medina. The operator answered back, "You are mistaken; Mr. Root does not want to *buy* your horses and buggy—he simply wants to be carried to Medina."

It did not take me long to decide that I would not pay $2.00 for being carried eight miles, nor $6.00 for being carried twenty-four miles. The bystanders suggested that I would then have to wait till night.

"No, my friends, I shall not have to wait till night."

"Well, you can not ride on the coal or freight trains, and you say you won't pay the livery man his price. How are you going to help yourself?"

"How am I going to help myself? Why, *this way*." And without wasting any more words I started off along the track on foot. A blinding snowstorm had just set in, and the crowd had a big laugh at my expense. I presume that some of them decided in their own minds, stronger than they ever did before, that A. I. Root *was* a sort of crazy fanatic. What do you think about it, dear friends? I had not had any breakfast yet; but I was so impatient to get home that I did not want any breakfast. I felt well and strong. I had been shut up in the crowded city so long that I felt almost wild to get out into the country and breathe the country air, and use my feet. Do you love to walk? I pity you if you don't. I felt, as I started out that morning, the same inspiration I used to feel in walking down to Abbyville to that Sunday-school. I presume the neighbors (perhaps *loafers* would be a better name, but I prefer to regard them as neighbors all the same) who saw me start off in the snowstorm concluded that my strength would give out long before I reached Grafton, eight miles away; but I didn't think it would. In fact, I hadn't any very definite plan as to how I *should* get home; but I enjoyed moving in the direction of home, even if nothing but the trusty feet that God gave me were available for the time. The storm blew right in my face, but that was ever so much better than sitting in the depot, or trying to kill time in waiting for a train. I don't believe I would have consented to stay all day in Elyria, even if I could have earned ten dollars by so doing. Why, I was earning *a dollar an hour* as it was, and enjoying myself at the same time. The livery man wanted $2.00 to take me to Grafton, and I knew I could easily walk the eight miles in two hours. In fact, I felt then as if it would be a privilege to walk the whole twenty-four miles; but that would take valuable time, and I had no right to overtask the strength that God had given me of late, in any such foolishness. Half a mile further, and I met a lot of railroad hands going to the depot because of the storm. When they found I was going to foot it to Grafton they too laughed, and regarded me as partly crazy, I suppose. You see, I was dressed up pretty well for a country chap who is in the habit of being in the mud and dirt most of the time, and that is why they thought it singular. Who would not enjoy walking, if he knew he was earning a *dollar an hour* for doing it? And yet I am compelled to believe that a great many people waste money that has been earned by hard toil, that they might save by going on foot. It is true, railroads carry us for three cents a mile; but if I were a poor man, and out of employment, I would rather earn 60 cents a day by walking 20 miles, than to do nothing. The world might regard a man crazy who would walk 20 miles to save 60 cents; but I think we would better have crazy men than so many tramps and paupers. The cable cars in Chicago will cary you ten miles for a nickel—that is, half a cent a mile; but I believe the livery men, in most of our cities at least, want about 25 cents for every mile they carry anybody; and my experience is, that they will seldom hitch up a horse to go *anywhere*, short of a dollar and a half. Isn't there a chance for those who are out of employment to make something by carrying people? I suppose that livery men, of course, have to have good prices to make up for time when they are idle, and don't have any thing to do. They must also have prices to cover the expense of telephones and other modern conveniences in their line; but I do believe they would have fewer idle days if they were more moderate in their charges, or base their prices according to circumstances. This train of thought was interrupted all at once by a recollection that made me start. While at the telephone office, why didn't I telephone to have Meg and the buggy meet me at Grafton? Meg is spoiling for exercise, and here am I going on foot. Had I had my wits about me, and telephoned home before I started on foot, she could easily have made the 16 miles to Grafton while I am making 8 miles to the same place, and save what I shall have to pay a livery man there. Not very long ago I scolded the women-folks in the kitchen because they were putting hot fruit into fruit-jars with a *tablespoon*, while beautiful little funnels, made expressly for the purpose, hung up at the top of the stairs in the counter store. We had sold hundreds of them for that very purpose, and yet the women were working slowly and laboriously by the old-fashioned methods. While I stood there by that telephone that saved me a walk of two miles to the livery-stable, I was not bright enough to recognize that these very clicking instruments that were making such a noisy clatter would instantly summon the friends at the factory to meet me at Grafton, with a big hurrah to think that I was even so near home. The little text about getting the beam out of your own eye before——scolding the women-folks, occurred to me just here. Well, to tell the truth, friends, I am not much used to traveling; in fact, I am a sort of country greenhorn, in some respects, when I am out in the great world and mixed up in the machinery of modern travel. Should I go back? If I did, I should have to face the crowd that laughed at me. I never like to go backward when I am started in any enterprise. May be I am a little foolish in this respect, but I pushed ahead. When the mile-posts showed that I had made just four miles, I was not a bit tired; in fact, I felt more like walking than when I started; neither did I care a cent about the breakfast I had missed. Perhaps the bountiful tables at the Commercial Hotel in Chicago, which I had enjoyed for so many days, had given me a little surplus strength. Dr. Tanner, you know, laid by enough food to last him *forty* days.

I knew by former experience that a walk of two or three miles would produce a pleasant exhilaration of spirits, and it did come. I was happy. When I started off I felt a little bitterly toward the officers of our road because they would not make *me* an exception to other people, and take me home on a coal-train. This feeling had all gone. I felt glad they had made me "toe the mark" as well as other people who don't give them as much trade as I do. Instead of grumbling and finding fault with our great railroads, I felt like praying for them, not as enemies, but as friends and *neighbors*. I felt like praying for the neighbors, too, at the depot, who laughed at me because I was going to have such a *hard time* (?) in facing the storm for eight miles, and I prayed that God might give them a glimpse of the happiness I then enjoyed, contrasted with that fearful habit of standing around with their hands in their pockets on stormy days. I wonder, dear reader, if you ever knew what an excellent opportunity walking on a railway track through the open country gives one to talk with God. You can talk out loud, without any possibility of being overheard. Yes, you can pray for your enemies, if you have any. I talked right out in plain words. In some way it seems to me to give me very much more strength in praying for any thing or for anybody, where I am off alone, if I can say it out loud. There had been several things on my mind for some time that I didn't feel equal to the task of praying for—things that stirred up bad feelings whenever I let my mind dwell on them. The exhilaration of the walk had banished all uncharitableness, and, I hope, all narrow-mindedness. My heart was full of the sentiment of our text, although I hadn't thought of the text at that time. "Great peace have they which love thy law." I made the other four miles easily; for while I was praying, as I have told you above, the sun came out from between the clouds, and then how I did enjoy thanking God for the sun! This great glorious sun and I are old friends, as you may remember, and we two have lots of plans in store for the year 1888—plans that you, dear readers, are to share in. As I came up the steps of the hotel, I felt just a little like breaking my fast. I met my old friend Frank M——, and soon bargained with him to take me to Medina for $2.50; so you see I had saved the difference between $2.50 and $6.00 already thus early in the morning. I told them I was ready for a good breakfast, while Frank got up his young horses. I overheard Frank tell the cook,—

"That's A. I. Root; you want to give him a slashing good breakfast."

And the cook did it to a dot. I have had a great many nice breakfasts, but it seemed to me that none excelled this one. Why, it was worth at least a dollar to get such an appetite as I had after my walk of eight miles. So you see I was *another* dollar ahead, and the price of the breakfast was only 25 cents. I felt sorry to have them make all that fuss during the middle of the forenoon, for such a trifling sum. I told you that Frank is an old friend of mine. Now, perhaps if you should discover that he has some very bad habits, and at times uses some very bad language, you might think strange that I should have such friends. I have known him a great many years, however, and I know pretty much all about his bad habits; but, dear reader, would it make those bad habits of his any better if I should turn a cold shoulder toward him? Or, if you choose, is there any probability that his habits will grow worse *because* of the fact that I have been sociable and pleasant with him whenever an opportunity offered?

Some time back in these Home Papers I told you of stopping at Grafton for a few hours one evening, waiting for a train, but that I found the tobacco smoke so bad at the depot, at the stores, and at the hotel, that I began to look for a place where I could write, free from tobacco-fumes. They said they didn't know of any other way than to send me in with the women-folks. "All right," said I; and in half an hour more I was having a most pleasant chat on the subject of religion, with an old lady who was delighted to find somebody who loved the Lord as she did. Well, this old lady, when she got warmed up on the subject, whipped out an old clay pipe and began to smoke. I suppose that, under the influence of the stimulus, she could talk about the Savior's love still more freely. Well, I found out, on my ride home with Frank, behind his pair of colts, that this old lady was *his mother*. I did not get away from the fumes of tobacco entirely, even when I went in to stay with the women-folks; but I did a great deal better. I found a fellow-traveler who loved the Lord. Frank has promised me that he will not only hitch up his colts and take his mother to meeting every Sunday morning and evening (as he has been doing), but that he will try to manage sometimes to get in and take a seat by her side.

I came home feeling happy, even if I did go away feeling blue and low-spirited. I felt happy, because I had found a good many real nice neighbors of whom I knew nothing before I started away; and I felt happy because John and Ernest and the rest of the friends at home had, during my absence, managed every thing perhaps as well as I should have done, and in some respects they had made decided improvements. But for all that, they were glad to see my face, and to see the "boss" flying around here and there, up stairs and down, in his accustomed way. Truly, the words of the Psalmist are right and correct in every respect.

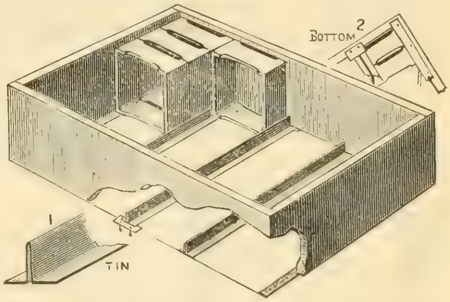
> Great peace have they which love thy law, and nothing shall offend them.

OUR OWN APIARY.

CONDUCTED BY ERNEST R. ROOT.

THE T SUPER AS NOW MADE.

THE engraving of the T super which appeared on page 156 last spring, although a correct representation as we first constructed it, is not as we now make it. Since its first appearance in our journal it has been quite materially modified, as some of our readers of the early spring and summer of last year will remember. Indeed, before it assumed its present practical form the suggestions were so many—not a few of which were practical—that before we had another engraving of it made, we decided to wait. Now that practical bee-keepers, prominent among whom is Dr. Miller, are satisfied with its present form of construction, we have had another engraving made — one which we believe is accurate in every detail.

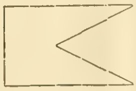


THE T SUPER WITH THE ADDED IMPROVEMENTS.

You observe, instead of having the bee-space below, as originally illustrated on page 156, it is on top. The T tins are flush with the bottom, supported by the little oblong piece of strap iron, as shown in that part of the engraving cut away. The two wire nails passing through perforations in the small piece show how it is fastened to the bottom of the side—a bottom view of which is seen at 2. To the bottom edges of the end-boards, and projecting over ¼ in., is nailed a strip of tin, also seen in Fig. 2. The purpose of these strips of tin, it is evident, is to support the sides of the sections next to the ends of the super, while the three T tins support the middle. An enlarged view of a T tin itself is shown at Fig. 1.

It is not necessary, in the present article, to reconsider the reasons why we have adopted this form of the T super; for instance, why the bee-space is above the sections; why there is none below, and why the T tins are made movable, etc. Beginners and new subscribers are referred to pages 217—221 inclusive, in the Mar. 15th number of last spring, where they will find that Dr. Miller and others have covered the ground most completely.

As I stated above, the little pieces of strap iron are nailed to the bottom edge of the side, with two wire nails. This mode of fastening is rather expensive, and yet no better one has yet been suggested. As an attempt at a solution of this, I cut some pieces of strap iron into this shape, leaving two sharp prongs at one end, thus:



This I bent at right angles in the middle. The points were then driven into the wood until the horizontal portion of the iron was flush with the wood. Theory looked at the matter somewhat in this way: The scraps of iron can be instantly cut out on dies. A folder forms the right-angle bend. A couple of blows with a small hammer will drive the prongs into the wood, and so hold the projecting iron securely. Practice agreed with theory in all but the last point; viz., that the T-tin supports so fastened would not be secure. While they might answer the purpose of one season's use, they would, in any event, be in constant danger of being pulled out.

I mention this attempt, not as being in any way practical in its results, but to prevent some one else wasting time in the same way. If a cheaper and better method, at the same time not at a sacrifice of strength and durability, could be devised, we should hail it with joy.

TRANSPLANTING TUBES.

THEIR SIMULTANEOUS DISCOVERY IN MICHIGAN AND OHIO.

MR. ROOT:—Last spring I planted, as usual, a patch of melons, numbering 1180 hills. They were just nine feet apart each way. I put from ten to forty seeds in a broad hill. I noticed the cut-worms were at their work, so Clarence and I went over the hills regularly every day for about ten days, digging the worms out and destroying them with sharpened sticks; but it seemed impossible to save my melons. But as "necessity is the mother of invention" I set about and gathered a wagon-load of tomato cans, melting and knocking the ends out. I set them over some of the plants in the hills, to act as a fence to keep the worms out. Well, I kept out those which were out; and those which were in I soon caught and destroyed. Two-thirds of my melon-hills were saved, but to plant the vines anew would cause them to come on too late for market. I found, on pressing the tubes into the soil deep enough to get below the tap-root of my tender melons, the plan would work like a charm. I transplanted them so nicely that they grew right along without stopping, and some of the largest I had were from those that I removed. I used the thickest tins to take up the plants with—those with an open seam, and one a size larger to make the holes for the plant. Place the open tube over the plant; press it down to the proper depth; take hold of the top of the tube with both hands, and hold it a little skewing, so as to make the bottom smaller than the top. Draw it up and place it in the hole; loosen your grip, and the work is done, with a little packing and leveling about the hills or plants. So it seems that your invention and mine are about the same, with only this difference: I dump the plants out of the tube dry, and you wet them to get them out. Now, I had not thought of being an inventor until I saw GLEANINGS of Nov. 15, 1887. O. I. MILLER.

Augusta, Kal. Co., Mich., Nov., 1887.

You are right, friend Miller. You are just as much the inventor as I am, only you invented yours for a special purpose, and I invented mine for a somewhat different purpose. I tried them with one edge loose; but you can not throw them into a wheelbarrow and wheel them out into the field if you do that way. Your plan would, however, be the simplest and easiest for filling up hills destroyed by cut-worms. We have for several years done this with cucumbers by taking the plants up with a shovel or spade; but your tubes are quicker and safer. For market-gardeners, when the ground is nicely manured and prepared, it is a big loss to have missing hills; but by means of the transplanting-tubes we can have a plant in every hill, and no mistake. I am very glad indeed to know that you made it answer so nicely in circumventing the cut-worms. No doubt you can earn ten dollars a day in getting rid of the cut-worms, and succeeding in getting a crop when nobody else does. I wish you would tell how much the 1180 hills brought you, if you can readily.

GLEANINGS IN BEE CULTURE.

Published Semi-Monthly.

A. I. ROOT,
EDITOR AND PUBLISHER,
MEDINA, OHIO.

TERMS: $1.00 PER YEAR, POSTPAID.

For Clubbing Rates, See First Page of Reading Matter.

MEDINA, JAN. 1, 1888.

The righteous shall inherit the land, and dwell therein for ever.—PSALM 37 : 29.

DATE YOUR PRINTED MATTER.

As the season for price-list notices is just at hand, we want to urge upon you the importance of dating your printed matter. We shall strictly adhere to the rule we adopted last year, of rejecting from CIRCULARS RECEIVED all such as bear no date. Please remember this, friends, if you want to see your catalogue mentioned in our columns. Two or three have just been sent in with no dates which we can discover; hence our reason for bringing it up again.

HOW I PRODUCE COMB HONEY.

THIS is the title of a little pamphlet by our friend Geo. E. Hilton, Fremont, Mich. It contains 12 pages of reading-matter, appropriately illustrated. The instructions are plain and practical. Just before closing the subject, the writer adds:

> In closing, I feel I can not urge too strongly the use of the zinc queen-excluding honey-board. I consider it one of the grandest inventions of the age—no brood in the sections; no fastening the sections, crate and all, to the brood-frames, thus tearing off the bottom of the sections, or lifting the brood-frames out by their adhering to the crate. In fact, with the experience I have had with it, I would as soon think of putting on sections without foundation starters as putting on crates without a queen-excluding honey-board.

The price of the little book is 5 cts., postpaid, and it can be obtained of the author as above.

THE STANLEY AUTOMATIC HONEY-EXTRACTOR CHANGED HANDS.

MR. EDWARD R. NEWCOMB, of Pleasant Valley, N. Y., has recently purchased of Mr. G. W. Stanley, of Wyoming, N. Y., the privilege of making and selling his automatic honey-extractor. Mr. Newcomb informs us that the extractors will be crated all ready to be sent out. There will not only be substantial improvements made in its construction, but the price will be very greatly reduced. Parties desiring to purchase can obtain these extractors of us, or of Mr. Newcomb, as above. In the next edition of our catalogue we shall quote greatly reduced prices on these machines.

QUESTIONS FOR QUESTION-BOX.

A GOOD many of our subscribers entirely misapprehend the purpose of the Question-Box. This department is intended to answer only the most important questions—those concerning which there is an honest difference of opinion among practical bee-men; those where differences in locality affect the answers; those, as a rule, which are *not* answered in text-books, and those which are not too indefinite to be answered, or too dependent upon conditions. We should like to insert all the questions sent in for the "Question-Box," if it were profitable to put them there. Quite a number are most fully answered in the A B C, and other text-books, and it would be a waste of valuable space and time to submit them to our selected corps of contributors, each of whom would, under necessity, give the same or essentially the same reply. Such a question can be answered just as well, and better, by the editor, as by a dozen or more contributors, and the same published or not, as its importance requires. We now have a large number of questions from which to choose, and it will be our endeavor to select the best. While we may not make the wisest selection, on general principles it is presumable that we are the most competent by virtue of our position. So, therefore, dear friends, if you do not see your query answered in the Question-Box, do not be disappointed or discouraged. We want you to send the questions just the same.

THE OHIO STATE CONVENTION, JAN. 10TH AND 11TH.

BEFORE another issue goes forth, the State convention will be a thing of the past. As announced in last issue, it will take place at Columbus, in the United States Hotel, corner of High and Town Sts. Reduced rates at the hotel have been secured, also rates of travel. A very full programme has been prepared, with the names of some of our best and most successful bee-keepers to take part, as will be seen by referring to the programme on page 32. Such men as H. R. Boardman, C. F. Muth, Dr. A. B. Mason, Dr. Tinker, Dr. H. Besse, and others, write they will try to be on hand and carry out that part of the programme assigned them. Your two humble servants, A. I. Root and E. R. Root, will also be present. Every effort has been put forth to make this one of the best, if not the best, State convention ever held in Columbus. Personal invitations have been sent out to two or three hundred bee-keepers; and if that means any thing, we shall have a large attendance. It will be one of the rare opportunities to get a good hand-shaking acquaintance with those whom we have long known through the journals, and talk over "lots o' things, you know." It was voted unanimously at the last convention, that the bee-men bring their wives to the next meeting. We hope every loyal bee-keeper will remember this. Mrs. A. I. Root and Mrs. Ernest R. Root will be present. They would feel "awfully" disappointed if their sex was not fairly represented, and you know we don't want anybody to be disappointed. The bee-women of the State should make an extra effort to attend if possible.

We have said that reduced rates of travel have been secured. So they have; but in order to take advantage of the one-third fare in return from the convention, the vice-chairman of the Central Traffic Association has stipulated to our committee that there shall be not less than 100 in attendance who shall bear receipted certificates of having paid full fare one way. If we are correct, formerly the number required to get the reduced rates has been only 50. The committee is now at work to get the number reduced to the latter figure if possible. Whether successful or not, we ought to be able to secure an outside attendance of 100 bee-keepers. Our subscription clerk informs us that we have nearly 1000 subscribers in our own State. Such being the case, in view of the efforts put forth we ought to have the required number. Remember, therefore, to pay your fare *one way only.* Before taking the train to Columbus, ask your agent to give you a certificate entitling you to one-third fare home from the convention at Columbus.

EVIDENTLY our subscribers intend to remain with us; for in spite of the fact that, when subscription-lists receive the greatest falling-off, we still have 7652 subscribers—only 39 less than last month, and lots more to hear from. For this accept our sincerest thanks.

SPECIAL NOTICES.

TILLINGHAST'S NEW BOOK ON CABBAGE AND CELERY.

The above contains some very valuable suggestions in regard to raising cabbage and celery plants. See advertisement on page 3.

DELAY OF 35-CENT BOOKS.

Our supply of the 35-cent books mentioned in our premium-list has not been equal to the demand, and a few orders have been delayed a few days. We expect to have plenty more in about a week, when all orders can be promptly filled.

REDUCTION IN THE PRICE OF POULTRY-NETTING.

We call the attention of our readers to our advertisement of poultry-netting, on another page. We have developed such a large trade in this staple article that the manufacturers have given us such figures as to enable us to make this big reduction in price. A 16-page netting catalogue mailed free on application.

100 METAL-CORNERED FRAMES FOR $1.75.

We have at North Walton, Delaware Co., N. Y. (express office Merrickville), 100 metal-cornered brood-frames in the flat, that must be disposed of at once. Our catalogue price is $2.20; but for an immediate cash order we will deliver them free on board at Merrickville for $1.75.

SEEDS OF NEW HONEY-PLANTS.

We have added to our list of five-cent packages of honey-plant seeds the melissa, or bee-balm, described on page 816, and the Chapman honey-plant, or globe thistle. We can furnish the seed of the latter in quantities at friend Chapman's prices, which he quotes as follows: Four ounces, $1.00; ten ounces, $2.00; one pound, $3.00.

BACK NUMBERS OF GLEANINGS IN DEMAND.

We will pay 10 cents each for any or all of the following numbers of GLEANINGS till further notice. Please look carefully at the dates wanted, and do not send any others:

All the numbers of 1875, except December.
January 1st and April 1st, 1878.
April 1st, 1879.
January 1st and December 1st, 1880.
August 1st, September 1st, November 1st, 1882.

FIFTY-CENT PAPER TELESCOPES ALL GONE.

We have mailed the last of the 50-cent telescopes, described in our premium list; and as we can not get any more, we hope our friends will not order them, for you will only be disappointed if you do. We have plenty of the $2.00 ones. These are a first-class instrument in every respect, and better worth the money.

ADVANCE IN THE PRICE OF TIN AND COPPER.

During the past two or three months the price of these metals has made enormous advances. Pig tin has gone up over 50 per cent, and copper about 25 per cent. Steel has also advanced; and as tin plate is made entirely of steel and pig tin it must, of course, advance. In consequence, we now have to pay from 50 cts. to $1.00 per box more for tin than we did before the advance. The general feeling seems to be that these very high prices can not be maintained many months. We have marked the price of tin up 25 cts. per box in our catalogue; but at present prices we shall be obliged to charge a still further advance, which can not now be definitely quoted. Solder, babbitt metal, and soldering-coppers, must necessarily advance. We quote solder at 30 cts. per lb.; Genuine babbitt, 45 cts. per lb.; ½-lb. soldering-coppers, 30 cts. each, and 1-lb. size at 40 cts. each. Most of our articles of tinware, such as honey and wax extractors, we had a good supply of before the advance. We will not advance the price of these till we are obliged to, and we hope to see the present extreme prices subside before that.

OUR JAN. 1ST CATALOGUE; SOME IMPORTANT CHANGES TO BE NOTICED.

We are now mailing the 63d edition of our catalogue and price list, which numbers 50,000, and we call attention to the following new features and changes: First and most important are the rules for ordering on page 3. If some of the friends who send us orders could realize the amount of trouble, expense, and delay, caused by not complying with those rules, they would be more careful in future to read and observe them. Violations of Rule I. have cost us hundreds of dollars the past year alone. Notice, also, the freight and express rates, and remarks on the same; freight classification, and inducements to order early.

We call your attention to the Tables of Prices throughout the catalogue. Instead of having the prices mixed in with the reading-matter, we have sought to put them in the form of tables so that you can find them more readily. We have not accomplished this wholly, but we are working toward it. Among the new tables we name that relating to the A B C of Bee Culture, page 3; to Saw-mandrels, page 6; Files, page 13; Hammers, page 15; Tacks and Nails, page 16; Honey-pails, page 21, and honey-knives, page 22. In some of these tables you will find the quantity prices reduced. Some few prices have been advanced. Drop us a postal for a new catalogue, and we shall be pleased to mail you one.

CIRCULARS RECEIVED.

It is the early bird that gets the worm; and just so it is the early advertising that brings the customers. The following have sent us their price lists for 1888:

E. H. Cook, Andover, Ct.; a 24-page club list of leading newspapers and magazines for bee-keepers, postmasters, and agents.

F. A. Salisbury, Syracuse, N. Y.; a 28-page price list of apiarian supplies.

A. F. Stauffer, Sterling, Ill.; a large-size 16-page circular of every thing needful for the apiary.

George E. Hilton, Fremont, Mich.; a 10-page price list of supplies.

Aaron Hunt, Gordon, Darke Co., Ohio; a 28-page catalogue of apiarian supplies, and Guide to Bee-keeping. Considerable valuable information is given under this latter department.

W. D. Soper, Jackson, Mich.; an advertising card of supplies.

The following have been printed at this office:

E. T. Flanagan, Belleville, Illinois; a 12-page price list of apiarian supplies and carp.

H. G. Frame, North Manchester, Indiana; a 4-page list of nuclei, queens, and bees.

J. M. Jenkins, Wetumpka, Alabama; a 50-page "Treatise on Bees and Honey, with a descriptive Price List" of every thing needful for the apiary. It contains a large amount of valuable reading-matter on bees, designed to instruct beginners and others who have little or no knowledge of the improved methods. Friend Jenkins keeps nearly all the supplies we advertise, and, with few exceptions, at our prices. Our friends in the Southern States can, as a rule, do better by purchasing of him than of us, on account of freight. His circular can be obtained of the address as above.

We should be glad to send samples and prices of our price-list work to those intending to get out circulars for the ensuing year. Remember, we have the most complete stock of apicultural engravings to select from.

CONVENTION NOTICES.

The Nebraska bee-keepers will meet in Lincoln, Neb., on Jan. 11, 1888, for their annual meeting.

Humboldt, Neb., Nov. 11, 1887. Henry Patterson, Sec.

The annual convention of the Vermont Bee-keepers' Association is to be held at the VanNess House, Burlington, Vt., January 18 and 19, 1888. Programmes will be sent later.

Shoreham, Vt. R. H. Holmes, Sec'y.

The State Bee-keepers' Association of New York will meet at Utica, Jan. 17, 18, and 19, 1888. Full particulars later.

Pine Plains, N. Y. G. H. Knickerbocker, Sec'y.

The Susquehanna County Bee-Keepers' Association will meet at New Milford, on Jan. 7, 1888. Subjects for discussion: The best way to prevent swarming; also, Is it advisable to Italianize? All bee-keepers are cordially invited.

H. M. Seeley, Sec., Harford, Pa.

The Cortland Union Bee-keepers' Association will hold its annual meeting at Cortland, on Tuesday, Jan. 10, 1888, for the election of officers, and to transact such business as may come before the meeting. All bee-keepers are invited.

R. L. Weaver, Sec'y.

The Northeastern Ohio, Northern Pennsylvania, and Western New York Bee-keepers' Association will hold its ninth annual convention in the parlor of the Commercial House, Meadville, Pa., on Wednesday and Thursday, Jan. 25th and 26th, 1888. Reduced hotel rates have been secured for those attending the convention. C. H. Coon, Sec'y.

The annual meeting of the Northwestern Illinois and Southwestern Wisconsin Bee-keepers' Association will be held in G. A. R. Hall, corner State and North Main Streets, Rockford, Ill., Jan. 17 and 18, 1888. Dr. Miller will be present, and a good programme is prepared. D. A. Fuller, Sec'y.

The Nebraska State Bee-keepers' Association will hold its next meeting at Lincoln, Neb., on the 11th day of January, 1888. The following topics will be discussed:

How does bee-keeping pay, compared with other pursuits?

How can beginners be so taught as not to ruin the market for those more experienced?

Superiority and excellency in the production of honey, and marketing of same; by Mrs. J. N. Heater, of Columbus, Neb.

What are the most essential points in locating an apiary?

Bee-pasturage, and the diseases of bees; by E. Kretchmer, Coburg, Iowa.

Spring management of bees; by E. M. Hayhurst, Kansas City.

Bee and honey plants; by Prof. Bessey, of the State University, Lincoln.

There will be a question-box. R. R. Ryan, Sec'y.

Bradshaw, Neb.

The Ohio State Bee-Keepers' Association will hold its next session Jan. 10th and 11th, Tuesday and Wednesday, at Columbus, in the United States Hotel, corner High and Town Sts. Rates are $1.50 each, double, or $2.00 per day single. Let us have a rousing and interesting meeting. We have a Langstroth, a Miller, a Tinker, a Root, a Boardman, a Muth, and scores of others of national reputation. The convention will be held but two days, so it will be necessary to get to Columbus the evening before, so that we may open up the first day with a good attendance, and get the full benefit of the two days.

Bluffton, O. Frank A. Eaton, Sec'y.

PROGRAMME.

First day, Tuesday, Jan. 10. Called to order at 9 A.M.

Reading the minutes of last meeting. Receiving members and collecting dues. Reports of Secretary and Treasurer, and Standing Committee.

Bee Conventions—How to make them a success, and their value to bee-keepers. By A. I. Root.

Discussion—Sectional brood-chambers and their advantages. Led by Dr. G. L. Tinker.

Reversing, and has it come to stay? Paper by C. M. Kingsbury.

AFTERNOON SESSION, 1 O'CLOCK.

Discussion—Bee-keeping in connection with other pursuits. Led by Frank A. Eaton.

Bee-keeping as an occupation for women. Essay by Mrs. Jennie Culp.

Bee-keeping as an exclusive pursuit. Paper read by Dr. C. C. Miller.

General discussion by members present. Resolved, That bee-keeping as a business is more profitable than farming.

EVENING SESSION, 7 O'CLOCK.

Wood versus tin separators: is it profitable to dispense with either? By Dr. H. Besse.

The T super, and other surplus arrangements in connection with bee-spaces. By E. R. Root.

Opening of the Question-Box. By S. R. Morris.

SECOND DAY, JANUARY 11, 9 A.M.

Extracted honey: its production, and the best method of marketing it. By Dr. A. B. Mason.

The commission man, and his relation to the honey-producer, as affecting the sale and price of honey. Paper by C. F. Muth.

AFTERNOON SESSION.

Tiering up: its advantages. J. W. Newlove.

Freezing bees. C. E. Jones.

Indoor versus outdoor wintering, and the advantages of the former. By H. R. Boardman.

Election of officers for the ensuing year.

Wants or Exchange Department.

Notices will be inserted under this head at one-half our usual rates. All ad's intended for this department must not exceed 5 lines, and you must SAY you want your ad. in this department, or we will not be responsible for any error. You can have the notice as many lines as you please; but all over five lines will cost you according to our regular rates. Of course, this department is intended only for bona-fide exchanges.

WANTED.—To exchange Wheeler & Wilson sewing-machines (new) for honey, bees, or supplies. J. A. GREEN, Dayton, Ill. 20tfdb

WILL print your letter-heads, price list, envelopes, honey - labels, etc., in exchange for S. hives, foundation, and bee-supplies.
1d GRANT SCOFIELD, Ridgeway, Orleans Co., N. Y.

WANTED.—An expert in bee-keeping for the summer of 1888. Address
FILMORE COLE, Lima, Ohio.

WANTED.—To exchange a new 10-inch Root foundation mill, for 200 lbs. of No. 1 clover or linden extracted honey. Address
1d E. F. BUSICK, Church Creek, Dor. Co., Md.

WANTED.—A foot-power saw and a fdn. machine, one or both, in exchange for bees. Write for references, etc., describing what you have.
DR. GEO. S. BRONSON, St. Albans, Vt.

WANTED.—An experienced bee-keeper requires a position. Southern States preferred.
1d H. FITZ HART, Bayou Goula, La.

WANTED.—To exchange one or two Barnes Foot-power saws, one new, and the other as good as new, for honey, wax, alsike clover, or buckwheat. Make offers. Address J. NYSEWANDER,
24tfdb Des Moines, Iowa.

WANTED.—To exchange 250 colonies of bees, for horses, mules, wagons, buggies, and 4 h. p. engine, or any thing useful on a plantation.
21tfd ANTHONY OPP, Helena, Phillips Co., Ark.

WANTED.—To exchange bees in Langstroth or Simplicity hives, for disk-harrow and hand seed-drill, also I want seed-catalogues. Address
W. H. Putnam, River Falls, Wis.

WANTED.—To exchange Ohio black-cap plants and Cuthberts, for sections or beeswax.
JAMES HALLENBECK, Allamont, Alb. Co., N. Y.
24-2db

HEADQUARTERS IN THE WEST

FOR THE MANUFACTURE AND SALE OF

Bee-Keepers' Supplies.

CHAFF AND SIMPLICITY HIVES FURNISHED AT A GREAT REDUCTION IN PRICE.

Nice Sections and Foundation, Specialties. A full line of Supplies always on hand. Write for our new Price List. Cash paid for Beeswax. 16tfd

A. F. Stauffer, Sterling, Ill.

NOTICE

Italian queens, bee-hives, and supplies. We sell goods very low. Send for price list.

B. J. MILLER & CO.
NAPPANEE, IND.

DADANT'S FOUNDATION FACTORY, Wholesale and retail. See advertisement in another column. 3btfd

25c. **FULL REPORT OF THE CHICAGO CONVENTION,** in a pamphlet of 40 pages, for 25 cents. Address
THOS. G. NEWMAN & SON,
925 West Madison St., Chicago, Ill.

$16 Buys our DAISY HARNESS, worth at retail **$25** Sent to examine and return at our expense. Catalogue free. CHICAGO HARNESS CO., Wholesale Mfg., 375 Wabash Ave., Chicago, Ill.

APIARY FOR SALE.

I am offering for sale one of the best locations for bee-keeping, in the famous
SHENANDOAH VALLEY.
Ten acres of ground, splendid house, stable and out-buildings, all new; also a carp-pond of about one acre; never-failing spring of excellent water; plenty of fruit, 3 miles from Martinsburg, W. Va.
Write for further particulars. PAUL PEINE.
Martinsburg, W. Va. 23-24-1 d.

UNTIL April First.—Frames only. We will cut to order, regular or odd size brood-frames for $1.50 per 100; 500 $6.25; 1000, $10,00; 10,000, $95.00. When ordering, send sample frame in flat, if possible. All orders shipped promptly. Freight prepaid on all orders of consequence to your nearest large city. Remit by P. O. order on Salem, Mass.
Middleton, Mass. J. B. THOMAS & Co.

Names of responsible parties will be inserted in any of the following departments, at a uniform price of 20 cents each insertion, or $2.00 per annum, when given once a month, or $4.00 per year if given in *every* issue.

Untested Queens

FOR $1.00 FROM JULY 1ST TILL NOV. 1ST.

Names inserted in this department the first time without charge. After, 20c each insertion, or $2.00 per year.

Those whose names appear below agree to furnish Italian queens for $1.00 each, under the following conditions: No guarantee is to be assumed of purity, or anything of the kind, only that the queen be reared from a choice, pure mother, and had commenced to lay when they were shipped. They also agree to return the money at any time when customers become impatient of such delay as may be unavoidable.

Bear in mind, that he who sends the best queens, put up most neatly and most securely, will probably receive the most orders. Special rates for warranted and tested queens, furnished on application to any of the parties. Names with *, use an imported queen-mother. If the queen arrives dead, notify us and we will send you another. Probably none will be sent for $1.00 before July 1st, or after Nov. If wanted sooner, or later, see rates in price list.

*A. I. Root, Medina, Ohio.
*H. H. Brown, Light Street, Columbia Co., Pa. 1tf
*Paul L. Viallon, Bayou Goula, La. 19tfd
*S. F. Newman, Norwalk, Huron Co., O. 19tfd
*D. G. Edmiston, Adrian, Len. Co., Mich. 19tfd
*Jos. Byrne, Ward's Creek, East Baton Rouge
19tfd Par., La.
*E. Burke, Vincennes, Knox Co., Ind. 5-3
C. C. Vaughn, Columbia, Tenn. 21tfd
J. M. Jenkins, Wetumpka, Ala. 3-1
H. G. Frame, N. Manchester, Wab. Co., Ind. 1-24

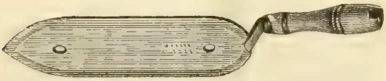
Hive Manufacturers.

Who agree to make such hives, and at the prices named, as those described on our circular.

A. I. Root, Medina, Ohio.
P. L. Viallon, Bayou Goula, Iberville Par., La. 21tfd
C. W. Costellow, Waterboro, York Co., Me. 1-23
R. B. Leahy, Higginsville, Laf. Co., Mo. 21tfd
J. M. Jenkins, Wetumpka, Ala. 3-1
F. A. Snell, Milledgeville, Carroll Co., Ill. 4-5

10 Per Cent Off

On sections until March 1st. Send for free Price List of every thing needed in the apiary. Sample section on application. Alsike clover seed cheap.
1tfd M. H. HUNT.
Bell Branch, Wayne Co., Mich., near Detroit.



Bingham & Hetherington's Honey-knife.

Old reliable Bingham Bee-Smokers and Bingham & Hetherington Honey-knives. They last 8 years; never clog up or go out. Send card for free circular, descriptive of the best and cheapest tools to use, to
BINGHAM & HETHERINGTON, Abronia, Mich.
1tfd

IMPORTED QUEENS.

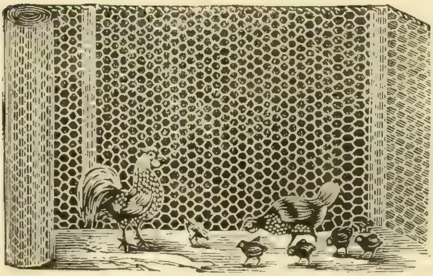
In May and June, each - - - - - - $2.00
In July and August, each - - - - - 1.80
In September and October, each - - - 1.40

Money must be sent in advance. No guarantee on shipments by mail. Queens sent by express (8 at least), which die in transit, will be replaced if returned in a letter.
1-11d CHAS. BIANCONCINI, Bologna, Italy.

FOR SALE AT A GREAT BARGAIN.

I offer for sale in the village of Caroline, Wis., the following property: One lot, 264 feet deep, by 82½ feet front, with a good frame house and a good frame store-building, 24x48 feet, two stories high, on Main St. The above-named property is in first-class order, and is a bargain for $1200.
1-d R. H. SCHMIDT, Caroline, Shawano Co., Wis.

GREAT REDUCTION OF 16 2-3 PER CENT
IN PRICES OF
GALVANIZED WIRE NETTING,
FOR POULTRY INCLOSURES, ETC.,
And Freight Charges Paid on 10-Bale Lots or More.



Immense quantities of this netting are used annually for constructing fences to inclose poultry. It is popular for this, because it is so well adapted, and nothing else makes so good a fence.

A FEW OF ITS MANY ADVANTAGES.

It is the cheapest, costing less than 75 cts. per rod for posts, staples, and all. It will last a lifetime, and never needs repairing, because it can't get out of order. Being galvanized after it is woven, it will never rust.

If you ever go to 42 Cliff St., New York, you can see a piece that has been in the weather over 25 years, and is just as good as the day it was made. It is easily put up and taken down. Ernest has a roll fastened to light stakes, which he has taken down and set up again in a different location in 15 minutes, when the ground was soft. It can not be blown down, as the wind goes right through it. On this account you don't need very heavy posts where the fence is used for poultry only. It does not keep out the light and fresh air, so needful to poultry. It is neat and ornamental, and always looks well if properly put up. It is so invisible that fowls can not see the top, and will not fly over. You can see inside as well as if there were no fence at all.

HOW TO PUT IT UP.

About one pound of staples is needed for a roll of netting. The posts to hold it should not be more than 10 feet apart, and they should be set in the ground at least 2 ft. for a permanent fence. In putting it on the posts, draw the top of the selvage tight, and fasten securely with the staples, and afterward draw the bottom down and fasten that. You can put a board a foot wide along the bottom, if you choose. This will prevent small chickens from getting through, and makes the fence one foot higher. If you want to make division fences, so as to keep different breeds from the same yard, it is better to have a board at the bottom at least one foot wide, so the fowls can not be gossiping through the wire, and pecking at one another. You will notice that one roll makes a yard nearly 40 feet square, and this is plenty large enough for 20 or 30 fowls.

TABLE OF PRICES.

This netting is made with 2, 1½, 1¼, 1, and ¾ in. mesh, of different-sized wire, and from 6 inches to 6 feet wide, and is put up in bales 150 feet long. That most used for poultry fences is 2-inch mesh, No. 19 wire, 4 feet wide, 150 feet long. This makes 600 sq. feet in a bale. Our former price has been one cent per sq. ft. in bale lots, or $6.00 per roll. We now offer it as follows:

TWO-INCH MESH, NO. 19 WIRE, ANY WIDTH.

Less than a full bale, or any fraction of a bale, 1c per sq. ft.
One bale, at 83⅓ cts. per 100 sq. ft., or $5 00 per roll, 4 ft. wide.
2 to 5 " " 80 " " " " " " 4.80 " " " "
5 to 10 " " 77½ " " " " " " 4.65 " " " "
10 to 20 " " 75 " " " " " " 4.50 " " " "

You will notice that this last price is ¾ cts. per sq. foot. Besides this, on all shipments from New York, of 10 bales or over, we will pay the freight to Jacksonville, Fla., or Cleveland, Ohio, or to any other place where freight is no more than to these places. We can ship from New York, Chicago, Cleveland, or from here, with other goods. We keep in stock only the 2-in., No. 19 wire, 4 ft. wide, and all other widths, weights, etc., will have to go from one of the three other places mentioned.

Three-fourths-inch galvanized staples, for putting up the netting, 20 cts. per lb.

A 16-page illustrated and descriptive catalogue, treating of netting of different-sized mesh and its uses, mailed free on application.

A. I. ROOT, Medina, Ohio.

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KIND WORDS FROM OUR CUSTOMERS.

I am well pleased with the A B C book and GLEANINGS. I should not like to be without them.
Powhatan, Ark., Dec., 1887. R. H. GUTHRIE.

The maple syrup was received in good order. It is the finest I ever saw. D. B. MANLEY.
Danbury, Conn., Jan. 2, 1888.

I can say truly, that I have found GLEANINGS a very good investment indeed—one that I should very much dislike to do without. W. H. RITTER.
North Springfield, Mo., Dec. 26, 1887.

I appreciate GLEANINGS very highly, therefore I can not dispense with it. Please send it for another year. D. N. CUMMER.
Florence, Ont., Can., Dec. 28, 1887.

I have taken your journal for several years, and I should not like to do without it. I got ten cents' worth of Japanese buckwheat from you last spring. I sowed it, and got 22 lbs. of seed from it.
Montville, O., Jan. 2, 1888. R. L. RHODES.

The goods I found at the station yesterday. The sugar was very fine, and the molasses the nicest I ever tasted. I should like a dozen more cans if they could be afforded, so that I could sell them at about what you charged there. F. M. NORWOOD.
Whiting, Ia., Dec. 13, 1887.

We take several papers and two bee-journals. I must say, that we like them all; but GLEANINGS is always the first sought by all the family, and it is a most welcome visitor. We all are much interested in your Home talks. May the good Lord spare you for many years to continue your good works, is our humble prayer. R. J. MATHEWS.
Riverton, Miss., Nov. 14, 1887.

OUR FLOUR-RECEPTACLE.

I received the flour-receptacle and books all right, and they are all and more than I expected. I think the flour-receptacle is something that every housekeeper ought to have. I am delighted with the book, "First Steps for Little Feet."
MRS. E. C. HARPER.
Iantha, Mo., Dec. 9, 1887.

THE WHEELBARROW FINE INDEED.

The bee-hive material is fine indeed, every thing so smooth and nice, fitting together nicely; also the counter goods. I especially like that clock you sent for only $1.50, and that back-saw is a fine tool. The wheelbarrow is the finest and neatest I ever saw; in fact, I am well pleased with every thing I got from you. Please accept my thanks for your square and upright dealings with your customers.
San Benito, Cal., Jan. 5, 1887. A. BORGMAN.

"IT IS SO BECAUSE MR. ROOT SAID SO."

For amount inclosed please send me a telescope mentioned in last supplement to GLEANINGS. Send also a pair of No. 9 shears. I have bought two pairs of other parties, which were said to be good steel, warranted to do good work, but they proved to be *iron*, washed over with something to make them look pretty. I thought I would not invest again, but somehow we all have confidence in A. I. Root. My husband says, "If Mr. Root says a thing is so, it is so." I think so too. Now, why do strangers trust you so? I often say that you are doing as much good in the world as any minister of the gospel. I hope your life will be spared for many years; and when you are called to go up higher, I know you will find many stars in your crown.
FANNY E. SANBURN.
East Thetford, Vt., Dec. 19, 1887.

THE OLD HEN AND CHICKENS.

I have just been reading in GLEANINGS about that hen and her chickens. I did not know so much could be said about so little a subject when you have so much business to see to. You must have more patience than I have, but it seems you can see the grace of God in an old hen and chickens, even if she raises hob with your fine flowers and nice things that you give so much care to. I am one of those men who get out of patience with myself and every thing around me; and when I read your last GLEANINGS I read some things that convinced me that we many times make ourselves more trouble by not looking things in their face as you do, and say every thing is all right if we only think so. Mr. Root, give us some more of your happy thoughts; I think the Lord will translate you by and by, or, at least, I hope so; but I trust not until you have lived to a ripe old age and have had your fill. I. F. PLUMMER.
Augusta, Me.

ONE OF THE JUVENILES TAKES UNCLE AMOS TO TASK.

Inclosed please find $1.00 for GLEANINGS the coming year. I very much enjoy its visits, and I would not willingly forego them, even if I did not have half a dozen stands of bees as an excuse for subscribing for a bee-paper. My Ernest, who loves a joke, wants to know if I or any one else should send a postal card with "stop it," and not add another word, *whose* paper would you stop?
MRS. M. E. BROWN.
Athens, Clarke Co., Ga., Dec. 21, 1887.

[My good friend, will you please tell Ernest that we would look on the face of the postal card to see where it came from; then we would look on the subscription-list, and see if we have subscribers there; and finally, by means of the Postal Guide and Bradstreet's commercial reports, and of our great big index-book to our ledgers, which book cost $75.00, besides our files of ever so many thousands of letters, we should probably in time find out who the man was, for we have such work every few days when somebody forgets to sign his name. Ernest is all right, however, after all. I should have said, "Stop it," and then sign your name.]

THE HOME PAPERS TO ONE WHO HAD BEEN ON A BED OF PAIN FIVE YEARS.

GLEANINGS found us mourning for the loss of a dear son. He died Sept. 23. He had been sick almost five years—had not been on a chair, nor turned over in bed, in four years. He was drawn all out of shape with inflammatory rheumatism, and was blind. You would like to know how much good your Home talks did him. He would say, as soon as the papers came, "Now, ma, sit down and rest you and read what Mr. Root has to say to us." There was nothing that did him so much good. He was always cheerful and happy. When I read what you said about dying, he said, "That is just as I feel about dying. I never have seen the time when I wanted to die, after all I have suffered." But God, in his goodness, has taken him from this world of pain and suffering, to a better world, I trust. Although he never united with any church, I trust he is safe in the arms of Jesus. I hope and pray that God will spare you to a good old age, so you can carry on your good work. MRS. A. M. MURPHY.
White Creek, N. Y., Oct. 10, 1887.

HONEY COLUMN.

CITY MARKETS.

KANSAS CITY.—*Honey.*—We quote choice white 1-lb. sections, 18@20c; dark, 1-lb., 16@18. White, 2-lb., 18c; dark, 16. Extracted, in cans, white, 9c; in bbls., 8c. California, 2-lb. sections, 18c; extracted, in 60-lb. cases, 8@9c. *Beeswax*, 18@20c. Supply of honey is larger than the demand, and sales are slow; the trouble seems to be, that prices are too high.
CLEMONS, CLOON & CO.,
Jan. 24. Kansas City, Mo.

CHICAGO.—*Honey.*—Sales so far this month have been very light. It may be that the extreme cold weather is the chief cause, as people do not get out to do shopping. Prices are tending downward, as offerings are large. Choice grades of white comb, in 1-lb. sections, 18c; off grades, lower, 14@15c. Extracted, 7@8c. *Beeswax*, 23.
R. A. BURNETT,
Jan. 21. 161 So. Water St., Chicago, Ill.

NEW YORK.—*Honey.*—The market for comb honey quiet. We quote as follows: Fancy white, 1-lb. sections, 16@19; 2-lbs. 14@16; buckwheat, 2-lb. sections, 10@11; 1-lb., 11@12. Off grades, 1 and 2c per lb. less. Extracted, white, 8@9. *Beeswax*, 22@23.
MCCAUL & HILDRETH BROS.,
Jan. 19. 28 & 30 West Broadway, N. Y.

CLEVELAND.—*Honey.*—Honey is very dull at 18c for the best 1-lb. sections. Market is overstocked for this season of the year, and we think that, in order to work off the large surplus there seems to be in our market, there must be a still further decline in prices.
A. C. KENDEL,
Jan. 21. Cleveland, Ohio.

KANSAS CITY.—*Honey.*—The demand for honey is light; 1-lb. sections, white, 18@20c; 1-lb., dark, 15@16; 2-lb., white, 17@18; 2-lb.. dark, 14@15; extracted, white, 7@8; dark, 5@6.
HAMBLIN & BEARSS,
Jan. 23. 514 Walnut St., Kansas City, Mo.

NEW YORK.—*Honey.*—The market continues dull and is rather unsettled on white comb honey, of which there is a fair stock. Buckwheat comb, however, is somewhat scarce and in fair demand.
F. G. STROHMEYER & CO.,
Jan. 24. 122 Water St., N. Y.

COLUMBUS. — *Honey.*—Market is very quiet; no changes to make since last report. Choice comb in 1-lb. sections, 17@18c; extracted, 10@12, and very little demand. *Beeswax*, 22@25.
EARLE CLICKENGER,
Jan. 23. 117 South 4th St., Columbus, Ohio.

PHILADELPHIA.—*Honey.*—Demand for comb honey now is about at a standstill—only a light request for extracted at 10@15c per lb.
PANCOAST & GRIFFITHS,
Jan. 23. 122 Dock St., Philadelphia, Pa.

CINCINNATI.—*Honey.*—The market is bare of excitement, with a fair demand for choice comb honey, and for best qualities of extracted in square glass jars. There is a good supply of all kinds. Comb honey brings 16@20c in the jobbing way; extracted honey, 4@8 on arrival.

There is a good demand for *Beeswax*, which brings 20@22c for good to choice yellow on arrival.
CHAS. F. MUTH & SON,
Jan. 24. Cincinnati, O.

ALBANY.—*Honey.*—Market is quiet, and firm for buckwheat and choice clover comb honey; but medium grades are close, and go slow at prices asked. Little more movement in extracted. Consignments solicited.
H. R. WRIGHT,
Jan. 21. 328 Broadway, Albany, N. Y.

DETROIT.—*Honey.*—Best white comb honey, in one-pound sections, continues to be quoted at 18@20 c's. Extracted, 10@11. *Beeswax*, 22@23c.
Bell Branch, Mich., Jan. 23. M. H. HUNT.

CHICAGO.—*Honey.*—The demand is rather light, and prices are barely steady; offerings liberal. We quote: White clover, small pkgs, 1-lb. sections, 16@18; same in larger pkgs, 2-lb. sections, 12@15; Dark, 10@12.
G. LASHER & SON.
Jan. 23. Chicago, Ill.

ST. LOUIS.—*Honey.*—Choice comb, 18@20; strained, in barrels, 6@7½; extracted, in barrels, 5½@8. Cans, 8@10. *Beeswax*, 19½@20.
Jan. 23. D. G. TUTT & CO.,
206 N. Commercial St., St. Louis, Mo.

BOSTON.—*Honey.*—Honey is slow. Sales at 16@17 for 1-lb. sections. 14@15 for 2-lb. sections. Extracted, 8@9. *Beeswax*, 25.
BLAKE & RIPLEY,
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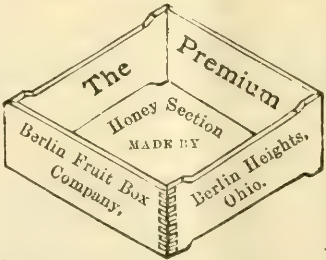

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GLEANINGS IN BEE CULTURE.
DEVOTED TO BEES, HONEY, & HOME INTERESTS.

Vol. XVI. **FEB. 1, 1888.** **No. 3.**

TERMS: $1.00 PER ANNUM, IN ADVANCE; 2 Copies for $1.90; 3 for $2.75; 5 for $4.00; 10 or more, 75 cts. each. Single number, 5 cts. Additions to clubs may be made at club rates. Above are all to be sent to ONE POSTOFFICE.

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SOMETHING ON THE BRIGHT SIDE OF BEE-KEEPING.

VALUE OF THE WILLOW-HERB DURING A SEASON OF DROUGHT AND FIRES.

ONCE or twice I have given in GLEANINGS a glimpse of the darker side of our bee-keeping experience. Because of this, it seems but fair to report our success, in a small way, during the past season. But to guard against mistaken inferences, I wish to preface the story by the statement that the average per colony for this season is our very best—the best we have to show for fifteen years of bee-keeping.

Our bees had wintered well. We had sold three colonies, and on June 1st, when the season usually begins with us, we had 22 in perfect condition. At this date we were quite prepared for a poor harvest. The month of May had been very dry, and fires had spread through the woods and swamps in all directions. There was no promise of white clover; it had been ruined by the drouth. But a small proportion of the red-raspberry bushes had escaped the fires. We did not think of basswood; too many years had passed since a drop of surplus had been gathered from this source. Willow-herb was our only hope, yet we questioned if the young plants had not been injured by drouth and fire. That a new growth might spring up in the track of these recent fires, and blossom in time for a honey harvest, did not occur to us as possible.

But, "it is the unexpected which always happens." A little rain the first week of June, saved some plants and started into life the seeds of thousands more in the beds which the fires had made ready. This we did not discover at once. We only took note of the fact, that after the rain the bees found a limited supply of raspberry honey. That there was not enough for daily use, was proven by the steady disappearance of the old honey, with which we were carful to keep all colonies well supplied. Still, brood-rearing was not checked nor swarming postponed. But never was the swarming more wisely managed. There was only just enough of it; once over, it was over for the season. Seldom have our swarms needed so little supervision. With hardly an exception, they decided that these were not days for extravagant provision for future swarming, and very little drone comb did they put in their brood-frames. This was some compensation for the general reluctance to enter the sections. Only a few of the more enterprising colonies seemed to find any surplus, and were tempted by full sections of comb into storing a few pounds above their brood.

About the fourth of July, to our surprise no less than our delight, the unmistakable, minty flavor of basswood was detected, and at the same time nearly every colony was found at work in sections. The flow was very moderate for basswood—not at all like what we used to have ten years ago. It lasted but two weeks. When it ceased, work in sections slackened but did not stop. Willow-herb—which is usually at its best during the last of July—was now yielding a small daily surplus.

Hoping to get all incomplete work finished, hoping nothing more than this, we severely contracted the surplus apartment in most of our colonies;

a proceeding which, soon after the first of August, we were obliged to reverse as speedily as possible. For though the drouth had now become severe, though the heat was intense, and the air again heavy with smoke, the honey-flow grew better as August advanced, being very good about the middle of the month and lasting quite through it. At first we could not account for this unusual prolongation of the season. But exploration of the woods revealed the mystery. Where the fires had run through late in May, the willow-herb was found in bloom, more fresh and vigorous than it had been in more open places a month earlier. Evidently the shade had been some protection from drouth.

The post of duty in those days was not always the bee-yard. Fires were constantly burning, through August, and much of the time were close at hand. One memorable day, as Mary, our girl, took in the view of twenty-five men working fiercely in a cloud of smoke, trying to beat out the flames which a brisk breeze was sweeping across the meadow toward the bee-yard and house, she exclaimed, "Oh! shan't I get water and pour over the bee-hives, and try to save the bees, at least?"

I confess that just then I had lost all hopes of saving any thing. The vain attempts we had made to check the flames, before help came, had left no strength for further efforts. That the men were being steadily beaten back by the heat and smoke was manifest. But, the next moment, two men, with a powerful team and a plow, entered the field on a run. The plow went into the ground—one man held the handles, while the other guided and urged on the horses—and a furrow was rapidly swept round some distance in advance of the long line of fire.

We waited breathlessly, but with hope revived, to see the men, beaten back to the furrow, make here a final and successful stand. Several acres of blackened meadow and several rods of burned fence, was the slight reminder left us of what might have been, but for the timely assistance of the railroad men, a serious calamity.

Richard had been called away on business that forenoon, leaving Nellie and me to watch the fires, from which, however, no immediate danger was anticipated. But the smell of burning stubble—for the fire had crossed a wheat-field before entering the meadow—reached us in the bee-yard a little too late to enable us to succeed in our first vain attempt to wipe out the flames with wet brooms.

There was a short flow of fall honey, chiefly aster, in September—previously to which we had had rain. But a few pounds of this was stored in sections.

The summing up—which I have been quite too long in reaching—is this: From twenty-two colonies (spring count) we obtained 2230 lbs. comb honey in sections, and 375 lbs. extracted. With respect to the extracted, the bees have not received due credit, sister says; for, when prepared for winter, eight or ten colonies were left with combs undisturbed, and therefore in possession of more honey than was needful or judicious. We increased from twenty-two colonies to forty.

Jan. 3, 1888. Cyula Linswik.

Thanks, friend Cyula, for your valuable report. I am very glad indeed you took the pains to find out where the honey came from; and it seems from your report, that it would pay well to move bees to localities where fires have passed over, as you mention. If I am correctly informed, the willow-herb seems closely allied to fireweed; and fires, as you describe, are just the thing to prepare the ground for this weed to flourish, and produce honey. You have, however, given us a valuable hint in regard to saving our property from fire under similar circumstances. If I remember correctly, the honey from willow-herb ranks fairly with clover and basswood. I do not suppose that it would pay any bee-keeper to try to raise it; but where it comes up spontaneously, under such circumstances as you mention, it would surely pay to move bees into such localities. I shall long remember the beautiful Michigan forests; and I remember, too, dear friend, my visit to you years ago. If the eight or ten colonies you mention are loaded with honey to the extent of some that I saw in your yard, no wonder you say they have more honey than is needful or judicious.

EVAPORATING NECTAR.

ALSO SOMETHING FROM FRIEND DOOLITTLE THAT ISN'T NECTAR.

FRIEND ROOT:—When I read your report of the Chicago Convention, found on pages 908 and 909, regarding "Why bees can store honey faster when furnished with foundation than when furnished with empty comb," I said, "Another craze among bee-keepers." This craze commenced a year or two ago by some one saying that honey stored in unfinished sections, left over from the year previous, was not nearly so good as that stored in comb built the same year from foundation. Almost immediately plenty of bee-keepers are found, who, *against their own best interests*, take up the cry and sound the alarm, that, if we insist on using empty comb in our sections, our honey-markets will be ruined by such poor stuff being put on them. Too bad we hadn't found this out before, and saved the markets of the past from having this stuff put upon them by the multitudes which have preceded us. However, as it had not been found out, so none of the learned of the past could sit in judgment upon it, it became necessary for that intelligent body of brave men, assembled at Chicago last November, to grapple with this gigantic question, and solve it. This they did by telling us that the trouble was, that the bees could not evaporate honey in deep cells, while they could do it to perfection where foundation was used, for in this latter case the bees could cause the unripe honey to jut out of the shallow cells, as it were, so the draft of warm air in the hive could pass over it, and so carry off the moisture, while in the deep cells this could not be done. No sooner was this explained than "many large honey-raisers" say, "We had better burn up our stock of sections than to use those containing deep comb, carried over from the previous season." To this, "many" outside say amen, "except for bait-sections," and others tell us how nicely the tiering-up process accomplishes all that is necessary for good well-ripened honey. See *Bee-Keepers' Review*, page 8. But what did the poor unfortunate bees do, pray tell, years ago, before all of this "scientific pleasantry" was brought up before them to pattern after. Well, they evaporated their nectar or thin honey just the way they always did and always will, despite all of this high-sounding philosophy. And how was this? When bees gather honey or thin sweet of any kind, it is given to the nurse-bees upon reaching the hive, till said nurse-bees have their honey-sacs full (the field-bees do not put it in the comb, as is said on page 12 of this volume of GLEANINGS), after which, if more keep coming, the nurse-bees disgorge it in the cells, so as to be ready for more from the field-bees. If it still pours in, every available cell is filled, even to combs on the alighting-board, as is given on page 12, before referred to. When evening comes, all the bees hang in festoons or clusters in the hive, one below the other, in such shape that each one's tongue, or proboscis, can be partially extended, so as not to touch another bee or any thing else. Then by their humming, roaring, or whatever you have a mind to call it, a great degree of heat is created; their sac is filled with this liquid, which is then thrown out on the proboscis, stirred over, and drawn in again to warm up. This process is kept up till the honey is sufficiently evaporated to be sealed over, when it is placed in the cells. More is now taken and put through the same process, till by morning all their honey is gone, and even friend Root can then handle the combs without danger of soiling his "Sunday go-to-meetings." Take a short straw in your mouth, and blow a drop of water gently through it, out to the end, and then draw it in again, and you have an idea of the process, all except the stirring-up. That, the bees can beat you in. Many have been the hours I have watched these operations by lamp light during a great flow of honey from basswood, and many hours have I lain by the observatory hive during the day to know something of the *great wonders* of the inside of a bee-hive. I once told these matters to the N. E. Convention, and was almost ridiculed; but this did not alter the facts any, for any one can see for himself, if he will investigate with a desire to know the truth. This process goes on to a certain extent during the day, but there are so many bees out in the fields gathering that it does not go on nearly so rapid. A colony that is gathering honey very slowly will not show any of this process. Experiment more closely, brethren, and don't jump at conclusions. After nearly 20 years of close observation, I fail to find honey one whit poorer, when stored and kept under the same conditions, in drawn combs, than in those newly built, or from foundation. Both sweat and grow poor under certain conditions, and both improve under right influences, after being taken from the hive. I believe locality has something to do with "doctors disagreeing," but I as firmly believe that hasty conclusions, not based on a thorough knowledge of affairs, has more to do with our not being united than any thing else.

Borodino, N. Y., Jan., 1888. G. M. DOOLITTLE.

Old friend, had you been with us at the Chicago Convention I think you would never have written just as you have in the above article. The word "*they*," which you use in applying to the theory of the evaporation of nectar, belongs to A. I. Root, and not the convention at all; and A. I. Root gave it as a *theory*. I have witnessed pretty much all you tell us; but no doubt we are indebted to you for *first* directing our attention to the matter. We are very sorry we did not see you nor hear from you at the convention in your own State, for this matter was there discussed pretty thoroughly. I do not suppose that many of us will follow Heddon, and cut out the empty comb for wax, and use up the sections for kindling-wood; but a great many of us will surely mark these sections containing deep empty cells, and compare them carefully with new sections filled with foundation; and this will be done quite thoroughly this coming season, as so much attention has been directed to the matter.

THOSE SECTIONS, AGAIN.

FRIEND DADANT EXPLAINS A LITTLE.

FRIEND ROOT:—I do not wish you to understand me as saying that three times as much honey can be obtained in large sections. When I said that the yield was sometimes as 3 to 1, it was in reference to large sectional vs. small glass boxes. You will remember that those glass boxes were only about 4x5x6, and had an entrance about 1x2 inches, which made it so difficult for the bees to ventilate them that they often gave it up. It was the same with the old-time box that communicated with the hive by a round 1-inch auger-hole, and I remember hearing a bee-owner wondering why his bees built combs under the bottom-board, and refused to build in the top box. Lack of ventilation was the trouble. The main point which I desired to make apparent was, that we must consider the natural wants and desires of the bees, and this is acknowledged by all rational and unprejudiced people.

COLONIES PER SQUARE MILE.

We wish to say to Dr. Miller that we had noticed, as he did, the difference between the German and the English mile, and thought that the statement to which he undoubtedly refers, and that was copied in father Langstroth's work, had reference to the former. But further investigations showed us our mistake. We will here give the passage referred to, so that the reader can understand:

"East Friesland, a province of Holland, containing 1200 square miles, maintains an average of 2000 colonies per square mile (Heubel, *Bienenzeitung*, 1854, p. 11)."

According to Chambers' Encyclopedia, we have to understand these to be English miles; and if Mr. Heubel told the truth, we are left with the statement that that country supported over three colonies per acre; and, taking the entire country through, some parts must have supported many times that number, since it is next to impossible for the bees to be evenly divided throughout a country. The number of three colonies to the acre does not seem very large, and would certainly not be impossible, if every inch of the ground were devoted to nothing but honey-producing plants. Be this as it may, we fully agree with Dr. Miller's previously given opinion, as to the largest number of bees that had better be kept in one apiary, in this country. C. P. DADANT.

Hamilton, Ill., Jan., 1888.

Friend D., I do not care so very much about the square-mile business; but one point you make helps me to grasp this whole point of overstocking better than I ever did before; namely, your suggestion that it would be a little over three colonies to each acre. I think I could make an acre of buckwheat, alsike clover, or even raspberries, support three colonies of bees, so they could have enough for winter and have a fair surplus. But in my opinion that is just about all we may expect an acre to do. We will suppose that each of the three colonies should furnish its owner 50 lbs. of honey, worth 10 cts. a pound; how far will $15.00 go toward putting in a crop to cover an acre? and yet even this is away beyond what the country at large affords. Those who are contemplating raising crops for honey alone, I hope will consider the above.

Now, I hope that no one will understand that I estimate three colonies of bees can be kept for every acre of bee-pasturage. If every acre contained clover, buckwheat, raspberries, basswood, or something equivalent, perhaps we might risk three colonies of bees to every acre of land. But in most localities the country at large would not average more than about one acre in ten that would yield a fair crop of honey; and I think we had better not figure more than a single colony of bees for this one acre in ten. At this rate we might have 64 colonies of bees on every square mile of territory. Some square miles will support more and some less. Now, as bees work successfully, say a mile and a half from home, any fair locality may possibly prosper with 452 colonies in the home apiary.

OPEN-SIDE SECTIONS.

FRIEND HEDDON OBJECTS, AND SAYS IT WILL NOT PAY.

WHEN I tell you that I have always considered the open-side-section notion a whim, you may judge my surprise at finding you at least partially taking sides with it, on page 45. I will try to tell you why I believe that Mrs. Harrison, Mr. Hutchinson, and myself, whom you consider the only opposers to the open sides, will come out at the top of the heap. We believe we are sure of our premises, in our own locations at least. To begin with, it has always been our experience that, when we had properly constructed hives and supers, the bees would go into the rows of sections and fill them with honey just as soon as there was any honey in the flowers. This has been the case with all colonies that were of normal strength. Now, what more can they do with open-side sections? Our objections to them are these: It costs more to make them; they afford more places for glue and bits of comb, and are more difficult to clean up for market. You know that the old-style Heddon surplus case has a board partition, and if used in this case the open sides would afford no communication. You further know, that this style of surplus case has given as good or better returns in comb honey than where it was produced in large frames with communications all around and about. I once asked Mr. Ed. J. Oatman how small he thought we would be compelled to make sections in order to decrease the amount of honey stored, per colony. He replied that he didn't know, but presumed the size of a thimble. He said, so far as he had ever gone in that direction, which was as small as half-pound sections, he saw no decrease in the amount stored. Mr. W. H. Shirley experimented with ¼-pound sections, and found no lessening of surplus honey per colony. You will remember how the pound section was objected to as being so small as to divide the surplus cases into too small apartments; but repeated experiments proved that scare to be only fallacy. I found I could get more surplus honey in pound sections, because I could better practice the tiering system, not requiring the bees to go so far from the brood-chamber to make their beginning in the top of the sections. I do not know just how we would go at it to make the four-piece dovetailed sections open on all sides, and we are radically opposed to one-piece sections, unless you can make the openings at top and bottom go clear through to the extreme sides.

I believe it was myself who first suggested rounding that naughty corner that was previously left on the upper and lower piece of all one-piece sections. Well, it is better rounded than square, but it now leaves an acute angle for bees to fill with glue. The quotation given by friend Dadant, on page 45, at the top of left-hand column, we have seen, and saw the same ideas years ago; but, nevertheless, the facts still remain that we want the hives of such size and shape as will give the most honey in the neatest and most attractive form, with the least labor; and I don't believe for a moment that opening the sides of the sections will result in one ounce more of honey. I am sorry if friend Dadant can not get as much honey in pound sections as in larger ones, and very glad that we can, and more too, because, as your readers all well know, they are just what the market demands most of the time; and the variation from this is half-pound sections. We experimented quite largely, at repeated intervals, with half-pound vs. pound sections, all of which we made the same height, and we got every bit as much honey in half-pound as in pound sections; and there is nothing in bee culture of which we feel surer, than that we can always do it; that opening the sides of the sections would aid us in no way whatever, and be a serious drawback as above stated. The quotation already referred to from Oliver Foster certainly favors flat brood-chambers, and you will remember how, for year after year, the same cry that we now hear from Mr. Dadant was set up against shallow brood-chambers. But experience overcomes all theory.

Please place me on record as saying that I believe there are not one-fiftieth as many open-side as closed-side sections now in use, although they have been before the public several years; and further, that ten years from to-day there will be no greater proportion of them than there is now.

JAMES HEDDON.

Dowagiac, Mich., Jan. 21, 1888.

I am very much obliged indeed, old friend, to you for having made such an excellent argument for your side of the question; but, if I mistake not, the Dadants, and quite a good many other honey-raisers, will make a pretty stout claim for the other side of the question. Is it not a little strange, that not more people have gone into the business of supplying half-pound sections, if it is true, as you say, we can get just as much honey in that way? In fact, we have had so few half-pound sections in the market that there never yet has been a price put on them scarcely. When we bought the nice lot of honey of our neighbor Chase, last fall, we had one case of half-pound sections. The regular one-pound sections sold promptly; but folks had never seen the half-pound, didn't know what to make of them, and would not buy them; and I am afraid our folks did not make very much effort to make them move off. You say the one-piece section, as made now, makes an acute angle for the bees to fill. Well, friend H., there need not be any acute angle there at all. The cutter-heads can be made to leave the end of the slot, where two sections are pushed up tight together, in the form of a half-circle, just as well as not. We have started out to have them done so a great many times; but some way or other we have not quite got to it.

PERSIMMONS.

SOMETHING ABOUT THE JAPANESE PERSIMMON.

AFTER my remarks in regard to persimmons a few months ago, quite a number of the friends in the South sent me samples of the native fruit, for which I tender the thanks, not only of myself, but Huber, Caddie, Connie, mamma, and, in short, about all the rest of the Root village. They were exhibited at the noon service, and we had enough of them so we could offer some of them to each one of the friends at the factory. But the best part of it was the one which friend Miller sent us. It was a Japanese persimmon as large as a good-sized peach, but more delicious than any peach I ever tasted in my life, I believe. Perhaps if I had seen lots of persimmons, and had never seen more than one peach, I might change my mind. But I tell you, friends, if you never tasted a Japanese persimmon, a treat awaits you. They are not like a peach, nor, in fact, like any other fruit you ever tasted in your life, but they are just beautiful. Below are the remarks in regard to it:

Mr. A. I. Root:—I send you by mail one Japanese persimmon and a few of our native kind. The Japanese was sent to my father, from the son of a correspondent of father's in Louisiana, by the name of Mr. Stone. The specimen I send you is one of four received, and is only the third largest in size. The largest one measured over ten inches in circumference. We are told they commence to bear when the trees are two years old, and that small trees, only a few feet high, bear fifty to sixty of these fine large persimmons. The large select ones sell at 10 cents each, or three for 25 cents, and the smaller ones for 5 cts. each in Shreveport, La. The others that I send you are just picked from a tree in our front yard. It came up there from seed, but proved to be barren. Father grafted it with a variety sent him by a friend in St. Thomas, Mo.; a few years later it commenced bearing, and has continued to do so every year since then. It is, therefore, a native of this State, and is somewhat larger than the average, though the specimens I send you are partly dry and therefore not full size. A great many people think the persimmon a fruit worthy of very little attention, as they grow wild in abundance; but I tell you, this year, when apples have been almost a failure, they are very nice. Part of the tree still hangs quite full, and the little spotted woodpeckers come around now and then.

Bluffton, Mo., Dec. 5, 1887. S. E. MILLER.

Since the above was written, I have made inquiries of our nurserymen, and find that the Japanese persimmon will not stand the climate in our locality, but that they are successfully raised in different parts of the South.

FOR THE JUVENILES.

BROWNIE.

PAPA brought in a little brown pullet, saying, "Here is a chicken that is blind; it is funny to see her running her bill over the ground, and can not find a kernel of corn. I think the very best thing that I can do would be to chop her head off."

Mamma says, "Oh, no! give it to me." So mamma sat down and fed biddy some bread and meat. She had to open her bill and put it in; but biddy was balky, pulling back all the while. Then she put her bill into some water. How glad she was! She drank herself, though sometimes she put her head on the outside of the cup.

Papa said, "Oil her eyes."

Mamma said, "Mrs. Chaddock cured sore eyes with honey, and we will try that first." So honey was put into Brownie's eyes, which were closed entirely. In a short time one of her eyes was cracked open a little mite, and she could feed herself.

Next day, when the door was open she went off to the other chickens. I'm sorry to tell this of them; but they picked poor Brownie, and papa brought her in again and put her back into her basket, behind the kitchen stove. More honey was put into her eyes, and in a day or two one eye was wide open, and she got into mischief, leaving her basket and flying upon the table and on to the top of the water-bucket. So mamma let her out to go with the other chickens, and in a few days she was as well as any of them.

Honey cured Brownie's eyes, and saved her life. Now, children, if any of your pets have sore eyes, try honey; or if you have them yourself, or if you have a cold, eat honey first, last, and all the time.

Peoria, Ill. MRS. L. HARRISON.

It is a very good point you make, my good friend, that honey is Nature's remedy for some kinds of sore eyes.

DRONES.

AT WHAT AGE ARE DRONE-BEES DISPOSED TO MATE?

ON page 662 of GLEANINGS for 1885 I published some observations showing that, under conditions apparently quite favorable, a drone crept out of its cell in about 24 days and 8¼ hours after the queen had laid an egg there. After nearly two years of prostration from severe head trouble, grateful to Him who has restored my health, and with kind greetings to the bee-keeping fraternity, I continue the record of observations then made:

August 13, 1885.—Drones fully two days old can make only short, flying leaps.

August 14.—When three days old, if tossed up into the air they fly well. One of this age, kept out of the hive half an hour, eagerly licked up some thin honey.

August 27.—I gave some drones just hatched in a good colony, to a strong nucleus.

August 30.—At 2 P. M., with the thermometer indicating 80°, four drones took wing. One coming just outside, discharged a whitish, cream-like mass, quite unlike the fæces of the common bee, which was eagerly licked up by the workers! Another, caught before it took wing, discharged a clot of somewhat yellower color. Evidently drones can not retain their fæces as long as workers. Some provision would therefore seem to be needed against a colony taking harm, when the cleansing flight of the drones is unreasonably delayed. As no drone was gone more than five minutes, none had left to mate.

September 1 and 2.—The weather was unfavorable, and a few drones only took wing, but not to mate.

September 3.—The temperature was 76° at 2 P. M., and the weather fair, with a gentle breeze. Of the many drones that flew, some returned in less than five minutes, most in ten minutes, and a few in fifteen minutes. I think that not one sought to mate, for a drone, unsuccessful in finding a queen, will not come home until his honey-sac is nearly empty—which usually happens in about half an hour.

From all the observations made at this time, I conclude that drones can not be relied upon for sexual duty until they are at least eight days old, and that most of them are not serviceable quite so young. The drone having no special office inside the hive, it is wisely ordered that it should seek to mate at about half the age a worker seeks for outside duties.

September 15.—The temperature was 60° to 76°, and the weather was cloudless. At 1 P. M., drones were in full flight. I put a Jones perforated-zinc guard on that strong nuclues, to be able more easily to catch the returning drones. The most of them evidently flew to mate; the last two were gone 51 minutes. I caught them all; they filled two large queen-cages. After most of them had been confined over half an hour, I placed the open cages more than a foot from the hive-entrance. To my surprise, many of them, unable to take wing, crawled to "the flight-hole," a truly woe-begone set of beggars, impatient—nay, importunate, to be fed; and the workers were all eagerness to supply their wants! One, too far gone to crawl or even to beg, on having his proboscis wetted with thin syrup, though at first barely able to take it, soon grew strong enough to fly. From numerous experiments made at this time, it seems that, if drones are kept from feeding only half an hour after returning from a wedding-trip, they become too weak to fly.

Catching, on the same day, some drones which were being worried by a strong colony, their honey-sacs were found to be well filled. It is easy to see how soon a drone must succumb, if the bees merely prevent it from eating. I believe that more perish in this way than by any actual violence done them by the workers.

I hope to be able to continue this subject in a future number. Rev. L. L. Langstroth.

Dayton, O., Jan. 10, 1888.

Friend L., we are very glad indeed to find that you are able to appear among us once more. Some years ago I made quite a good many experiments with drones; and my conclusions were mainly just about as yours are. They are poor helpless creatures, not able to live even 24 hours without the help of the worker-bees. In fact, I am inclined to think that a drone would starve to death, even when placed right on a head of clover, although the clover were yielding honey at its best. A small feed of fresh honey will revive a feeble and fainting drone in an amazingly short space of time. The children often discover this when they have drones to play with. Unless they are fed pretty often, or returned to the hive, they are very soon "no good."

XYLOCOPA, OR CARPENTER BEES.

PROF. COOK TELLS US SOMETHING ABOUT THESE CURIOUS INSECTS.

MR. W. A. HEMPHILL, Elsberry, Mo., sends what he calls "a hive of bumble-bees of the genus *Bombus*." He says: "This respectable little colony, composed of six bees, has been hibernating in this small hole, bored by the bees, in a board nailed to one of my outbuildings thus much of the winter. They have no stores, and without doubt have been quietly sleeping since winter commenced. When brought into a warm room they became lively."

These are not bumble-bees, as Mr. H. supposed; but the resemblance is so close that it is not strange that he thought they were. These belong to the genus *Xylocopa* and not *Bombus*. From their boring habits they are called "carpenter bees." I describe their habits briefly in my Manual. They are the largest of bees, and less hairy than are bumble-bees. The cells of their wings are quite different from the same in bumble-bees. These are simply males and females, while bumble-bees are like our hive-bees—males, queens, and workers. These bore holes in wood for their nests, while bumble-bees build their cells in some hole in the earth, under a board or clod—possibly in a deserted mouse-nest. Bumble-bees have the hind leg with pollen-baskets, pollen-combs, and wax-jaws, like our honey-bees, while xylocopa has none of these. The jaws of bombus are divided by grooves into three cusps, so they are trilobed, while the jaws of xylocopa have two cusps or are bilobed. These are the most obvious differences, and will enable any one to distinguish these bees, the one from the other.

These bees have been in a warm room since they arrived this morning; and although they closely fill the tunnel, or hole, in the block, which is as neat and smooth as if bored with a bit, they are humming quite merrily. This is interesting. Landois showed, some years ago, by most admirable experiments, that bees and some other insects make noises in three ways: Vibrations of the wings—buzzing; vibration of the abdominal segments; and by their thoracic spiracles, the breathing-mouths, which are situated just back of the base of the wings. This last is a true voice, and is the hum. Landois found that bumble-bees whose wings have been cut or glued would still hum; hence we see why these carpenter bees in the small bore, or the bumble-bee held in a close flower, will still hum.

A. J. Cook.

Agricultural College, Mich., Jan., 1888.

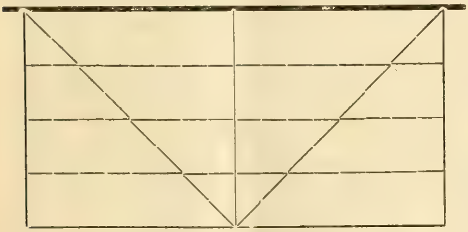
WIRING FRAMES.

HOW SHALL IT BE DONE?

If I remember rightly, some of the bee-friends objected to Hutchinson's plan of using strips of foundation in the brood-frames only, on the ground that the combs, when built, are not firm enough for extracting or shipping. If you will allow me the space, I will describe my experiments in striving to overcome the difficulty. In the first place, I used nothing but the narrow starter, as advised by Mr. Hutchinson. I succeeded very well as far as worker comb was concerned. But a few of the combs thus built broke down during the hottest part of the season, while combs built as I am about to describe did not. I tried extracting from some of them, and, by being very careful, I succeeded fairly well. But since cold weather came, a few which contained honey (that were stored away) have become badly cracked. This would probably not have occurred had they been stored in a warmer room.

As a second experiment, I used a bar of folded tin in the same manner as in wired frames, driving a ¾-inch wire nail through the top and the bottom bar into the closer fold of the tin. By this means I succeeded in getting better and firmer combs. They stand extracting well. At the suggestion of neighbor Hilton I also used two and three bars of tin. I had the best success with two. He and I also tried empty wired frames (starters, one inch wide). I used fully wired frames and bar of folded tin. During the honey-flow, the bees built right down over the wire; and if the hive was level, the combs were true with the frame. Were I to choose between combs built in this way and those made from foundation in frames with only two wires, I should choose the former, provided that things are so manipulated as to secure mostly worker comb. I should be glad to hear how others have succeeded along this line.

In wiring frames of foundation I have tried almost every conceivable method, and have settled down to three wires running lengthwise the frame (instead of the six perpendicular ones which you use), and the diagonal wires and bar of folded tin.



ANOTHER PLAN FOR WIRING FRAMES.

The bees place an abundance of wax around the folded tin, fastening the wires to it securely, thus making them practically only 8¾ in. long. I can wire faster this way, and get as good strong combs, as by your method. I fill the frames full of foundation. Perhaps in the past this subject has been gone over; but I should be glad to know just why you decided to use wire as you do.

Fremont, Mich. **William E. Gould.**

Friend G., we have had several reports in regard to bees filling wired frames where natural combs were to be built in the frame, and I believe, as you say, it works all right. We have never tried wired frames with two horizontal wires, in the place of our perpendicular ones. It has, however, always seemed to me there would be more danger of sagging of the bottom-bar; but I presume likely your diagonal wires are amply sufficient.

SHIPPING HONEY BY FREIGHT OR BY EXPRESS.

ARE EXPRESS COMPANIES CAREFUL, AND ARE THEY RESPONSIBLE FOR HONEY WHEN IT GETS SMASHED UP BY EXPRESS?

Editor Gleanings:—I inclose you some reports from commission men on shipping honey. It looks to me as though the express companies were getting careless.

New Milford, Pa. **F. W. Dean.**

F. W. Dean:—Your 12 boxes came to hand to-day, badly smashed, and honey leaking badly. I have put in a claim against the express company for damage, and will do the best I can for you.

Philadelphia, Pa., Dec. 19, 1887. **F. S. Gibson.**

F. W. Dean:—The honey trade is very dull. The supply on hand is large for the season, owing to continued mild weather. Strictly choice white clover, one-pound combs, have a limited demand at 16 to 17 cts., any thing else dragging at 12 to 15. The worst feature in the trade is the almost impossibility of getting here either by freight or express, in good order. Nearly every case received by us this season has been more or less broken and leaking. We would, in all candor, advise you to sell at home, avoiding the risk of transportation. If we could be certain of its arrival here in good condition we would offer you some inducements to ship, but can not under the present arrangement of handling in transit, both by express or railroad freight.

New York, Dec. 15, 1887. **P. Merseles & Co.**

While at the Chicago Convention this matter of shipping honey by freight or express was discussed, and a rising vote was called for. I believe that less than one in ten recommended shipping honey by express. In fact, I don't know but every one who voted on the question had had bad luck in some way or other in undertaking to send honey by express. All were in favor of shipping honey by freight, and at the same time we pay express companies a much higher price for the sake of being careful. It is true, honey is fragile and risky, but not as much so as many things the express companies do carry. For instance, they carry looking-glasses, and pay for them if they are broken. Why shouldn't they undertake honey if we pay them the same price they are paid for carrying looking-glasses? I have just submitted the matter to our agent of the American Express Co. here in Medina, and he says the matter shall certainly have attention. He says he is quite sure the American Express Co. does not propose to let a large trade slip through its fingers in that way, and he says there can certainly be no reason in the world why the men employed by the express company can not take as much pains in handling honey as handlers of freight, or "baggage-smashers," as they are sometimes called, do. On the way home from Chicago I found a bee-man on our train; and when I asked him his occupation (you see I am a natural born Yankee) he replied, with a smile, that he was one of that obnoxious class commonly known as "baggage-smashers." He gave me a good many excellent points in regard to shipping honey, of value to both consignee and consignor. These points I propose to take up at some future time.

AN OLD TRANSPLANTING-TUBE.

ROBIN REDBREAST AND THE CUT-WORM.

FRIEND ROOT:—About forty-five years ago, in Greenfield, Mass., I used very successfully a transplanting-tube invented by Hooker Leavitt, Esq., then clerk of the courts, and well known for his skill in gardening and horticulture. It was made of tin, with the top edge turned over so that it could be more easily pushed into the ground. It was conical in shape, being wider at the top than bottom, the better to hold in the earth when a plant was taken up. The upright edges of the cone were not close fitting, but could be sprung together and kept in place by a wire rod. It was used as follows: A hole being made to receive the tube with its plant, the earth was gathered loosely around it; and the wire being pulled out, the tube would spring apart enough for easy removal, without injuring the tender roots of the plants.

Your remarks upon the letter of Mr. O. I. Miller brought to my mind this old device, and with it the remembrance of the happy hours I used to give to the care of my hotbed and garden. What Mr. Miller said about the cut-worm, reminds me to speak a good word for our friendly robin redbreast. If any one will get up at break of day, when the cut-worms are doing their worst in our gardens and corn-fields, he will find the robin up too, and hunting for them while many are yet on the surface of the ground. He may be seen to cram his mouth so full, that now and then one will drop out before he can carry his prey to his young. As the cut-worm finds what it destroys by traveling over the top of the soil, I protected my plants by inclosing them in a cone made of old writing-paper, the smaller end of the cone being pushed about an inch into the ground to hold it in place. Simply covering the plants before sunset with old flower-pots, pans, etc., to be removed after sunrise, is also found to answer a good purpose.

The cleaner a garden is kept while the cut-worm works, unless some special devices are used to curtail its ravages, *the worse.* Having no weeds to prey upon, and not being willing to starve, this veritable pest has all the less trouble in finding and destroying the fruits of our patient industry. For this reason, when the hoe was almost our sole dependence for keeping down the weeds, I set mere looks at defiance, and allowed the weeds to have their will during the season of the cut-worm, only taking care that they did not encroach upon the plants so as to hinder their growth. It was a much easier task to destroy these weeds than to make the extensive replantings which their temporary endurance prevented.

Even now I almost shudder at the recollection of ruining visits paid to my garden, when the wily worm was my master, and when my choice cauliflower, cabbage, cucumber, melon, and tomato plants hung their drooping heads, or, cut in twain, lay upon the ground. L. L. LANGSTROTH.

Dayton, O., Jan. 5, 1888.

Many thanks, friend L., for the important facts you give us. It well illustrates the old adage, that there is nothing new under the sun. I do think, however, that my plain tins are much cheaper and simpler than those that have to be unhooked to get the plant out. I am glad, too, to see you defend robin redbreast. We shall take more pains hereafter, to encourage them in building nests. The evergreens that surround our apiary are so full of robins' nests that I have been afraid they would make a serious inroad on our strawberries and raspberries; but if they catch the cut-worms, I think we can afford to have somebody get up early and keep them off the berries until the pickers come on the ground.

FOUL BROOD.

DOES IT EVER START IN AN APIARY WHEN NOT INTRODUCED?

WHAT causes foul brood to start in an apiary, when not introduced from another that has it? M. A. KELLEY.

Milton, W. Va., Dec. 31, 1887.

Friend K., I am sure I am right when I tell you that foul brood never starts in an apiary unless there has already been some of it in the vicinity, or some honey in some shape or other has by some means brought it into the locality, and the bees have been permitted to get a taste of it. Foul brood can no more originate itself than can a hill of corn originate itself. Chilled brood, suffocated brood, or dead brood, can in no wise or manner originate foul brood. I have conversed in regard to the matter with our best professors of entomology, and with scientific men familiar with all the problems of spontaneous generation and vegetable life. There is no such thing as any plant or animal starting up without a seed or germ. Varieties may grow and develop, and new species may be originated by natural or artificial selection; but no plant starts up unless the seed was planted by nature or by man. Sometimes it is a little difficult to tell just where the disease did come from; but let an expert look the matter over, and I think he will tell you generally where it was contracted. At the recent convention at Utica, a young man mentioned a colony of bees that died in the cellar, without any apparent cause. As he stated it, no one could tell why they should die. I, however, went home with him, and went into the cellar. In just one minute I showed him where the trouble lay. His bees were wintered in pretty large deep frames. The cluster of bees was not very large, and his cellar was rather cold—between 30 and 40°. They consumed all their stores up to one frame completely filled with comb, without a single passage through it—probably built from a sheet of foundation. Well, the bees were clustered on one side of the comb, and had consumed every drop of honey, while the opposite side of the comb was filled with nice solid stores of clover honey. The bees could not get through the comb, and the cellar was so cold they could not go around to the other side, and hence they starved to death. A hole cut through that comb, with a penknife, which could have been done in less than a minute, would have saved the colony. He said he had noticed by some of the journals, that such winter entrances are not necessary; but the writer who said that, probably referred to L. frames, or something still shallower, whereas his combs were nearly a foot deep; and as they were made on foundation, there was not a hole left for a bee to creep through. When the matter was presented to the convention, although we asked a good many questions no one present could tell why the bees should die. But a moment's glimpse made it as plain as day. Now, I think it will often prove to be like this where foul brood starts out apparently of itself.

THE VENTILATION OF SMALL BUILDINGS.

DR. MILLER SCOLDS SOMEWHAT ABOUT THE EXISTING STATE OF AFFAIRS.

WILL you bear a word more on this subject? I remember once hearing a man at an educational meeting say, "What would you think, if you were seated at a dinner-table, and a cup of water were handed to a guest, who took the water in his mouth, then ejected it back into the cup and passed it to his neighbor, who did the same thing, and so on, till it made the round of the table? And yet, very much the same thing is constantly being done in our churches, schoolhouses, and dwellings. The air is loaded with the filthy exhalations of hundreds of lungs, some of them far gone toward decay, and yet you are forced to breathe it over and over again." I thought it disgusting talk, but was obliged to confess that the man had truth on his side.

Friend Root, the next time you go to church I wish you would watch the sexton. During the service it is likely some of the windows have been opened more or less for purposes of ventilation, —no, hardly that, for very few people think of ventilation for its own sake, but because the room was getting too warm. Now, just the minute service is over, watch that sexton. He'll shut every last one of those windows as tight as he can make them. His idea seems to be that the room is filled with a sort of sanctified air, to preserve which requires his most active energies.

The same thing occurs in schoolrooms. Go into one of the little country schoolhouses, venerable with years of service, some hot day in summer, when it has been unused for weeks, and kept tightly closed. It just *stinks*. There's no other word for it. What can possibly give it such an all-pervading, enduring perfume? I'll tell you. For many years, during several months of each year, day after day, that room has been filled with air, foul with the exhalations from many lungs, also from the skins of dirty little urchins, some of whom have been scarcely washed since the week of their birth. As soon as the day's session is over, this air is bottled up tight, so that the heat of the room may not be lost. The dead and decaying particles of matter, not unmixed with the seeds of scrofula and consumption, that have been thrown off from the skin and lungs, settle in the walls and furniture, to be breathed over again and added to, the next time the room is heated up. The poor ignorant teacher (and on this point nearly all our teachers are densely ignorant) thinks ventilation a matter of secondary importance, if she can only keep her charge *warm* enough. But I would rather have her attempt to freeze my children than to poison them. They can do something to resist the freezing process by squirming about in their seats and having a good romp at recess; but against the slow but sure poisoning by foul air which they *must* breathe, they are perfectly helpless.

Well, what is to be done? I can tell some things that can be done. At recess, let every window be open at top and bottom; let the door be opened too, if there is an outside door. The air of the room being heated, the cold air will rush in at the bottom of the windows, and the bad air out at the top, unless there is wind enough to blow right through the room. In a very few minutes the air of the room is pure and sweet, when the windows can be closed, and, with a good fire, the room will soon be comfortable, and *it is much easier to keep warm in pure than in foul air*. Stick a pin there. "But that will take more fuel." Of course, it will; but do you want to save fuel at the expense of your child's health and perhaps its life? "But the children who are sitting in their seats will take cold with the windows open." They have no business sitting in their seats at recess. If they can not be outdoors on account of stormy weather, they should be set to marching about the room, and I'll risk their taking cold. Let the room be aired out the same way *immediately* upon dismissing school, both forenoon and afternoon; and if the day is still, *some* provision should probably be made for the entrance of pure air during the sessions.

Instruct the sexton of your church so that he will thoroughly air out the room the minute the audience leaves the room, no matter if it does delay him a few minutes; for at that time the miserable air is anxious to get outdoors. See to it that, in some way, there is a chance for the ingress of pure air during the services, and don't make the poor minister strive in vain to get a good sermon into the half-sleepy heads and hearts of his hearers.

Now I have told you the truth, but I am not very hopeful that it will make any difference. Well, if you will go on breathing, and obliging the poor innocent children to breathe such dirty, vile, poisonous, filthy, rotten, nasty, polluted air, I can't help it. I wash my hands of the whole affair.

Marengo, Ill. C. C. MILLER.

Old friend, why do you say you are not hopeful that it will make any difference? Quite a lot of us are already hard at work, looking after this matter of ventilating public buildings. You ought to have seen Dr. Mason and some of the rest of us insist on the ventilation of our convention room at Columbus. As there was an open grate in the room, we managed to have real scientific ventilation; but, my good friend, there *is* such a thing as going to extremes, even in this matter. With a temperature approaching zero, one might bear, for the time being, a room that is tolerably close, better than to take a cold that may stand by him for months, or possibly cost him his life. I agree with you, that more people die from lack of air, as a rule, than from too much of it; but, even though this be true, I think we should take into account the *occasional* danger from the other extreme. By the way, we once ventilated a concert room to such an extent, and mainly just to please *you*, that you became so hoarse you could scarcely sing at all. Now, don't say we are all *sleepy* in regard to this important matter except yourself, good friend.

THE WIFE'S SHARE.

FRIEND TERRY GIVES BOTH HUSBANDS AND WIVES A LITTLE EXHORTATION.

FRIEND ROOT:—I think the lady that Dr. Miller tells us of on page 938 is "an isolated case," or at least a type of a very small class. Let me tell you how I think a very large class feel on this subject.

At the close of a farmers' institute the other day, where this matter of the wife's share had been discussed quite fully, a good, motherly-looking old lady came to me and gave her experience in these words: "My husband never really refused me any money that I asked for. But, as old as I am, if there was any way that I could earn what I want, unbeknown to him, I would do it rather than ask for it."

Now, I know this is not "an isolated case." Doubtless this woman voiced the sentiments of very many thousands of her sisters. As friend Miller "arraigns womankind," I feel in duty bound to say something against a large class of mankind. To the man, the gentleman, who acknowledges that his wife's labor is just as hard and just as important (the home-making) as his, and that she is his full business partner, and has just as much right to say what shall be done with their joint earnings, and to take some out to use as she pleases, as he has, to such a one I have nothing to say, only that he is one of God's noblemen. Why do not all men feel this way? Simply because a large part of mankind do not yet consider women as their equals. That old curse pronounced on Eve when she sinned has not been quite forgotten. The idea that they are masters, rulers, "the head," as well as the husband, seems to cling to them. To be sure, Paul did say, over 1800 ago, that the husband was the head of the wife; it wouldn't do for him to get too far ahead of the times in which he lived. Were he preaching in Ohio to-day I should expect very different sentiments from his lips. But even 1800 years ago, if one takes all he says together, he is but little if any behind the best sentiment of the present day. Just think a moment of the full meaning of this passage: "Husbands, love your wives, even as Christ also loved the church and gave himself for it." With such a love as that, no woman could feel as though she had rather work and earn the money than to ask her husband for it. She would never have a chance, though, to ask for it, as he would always see that she had her full rights without asking. Such a love would show a man that his wife and he were equal partners, working together for the good of the firm, with equal rights at the pocket-book, and not that one was the lord and master and the other a sort of half slave, obliged to ask for all she got, in a begging way.

I think that lady was right Mr. Miller tells of, who wouldn't take regular wages for her work, from her husband. That would place her in the light of a hired servant, rather than a full partner. No, there is only one right way; they should have a common pocket-book, and each should feel as though it contained their joint earnings, and one had as good a right to draw from it as the other. Against this it might be urged, that women would ruin their husbands by extravagance. Perhaps so, when kept as ornaments and not as full partners, or when kept in ignorance of the exact state of the finances. My balance-sheet, made yesterday, Jan. 2, shows every dollar that I have got, where it is, and all about it. My wife knows just how we stand, how much we are making, and always has from the day we began business together. I have far more fear of my own extravagance than I have of hers. Had I kept her in ignorance of the truth, I can not say what the result would have been. Perhaps it would have ruined me to leave my pocket-book around with full orders to her to help herself to what was as much hers as mine.

I can not think friend Miller quite right when he tells of his wife's work in the strawberry-bed, to save some money, and how she overdid, and made herself sick, and says: "In such a case I feel that I have the right to say, 'That money must go for the work, and it is not your privilege to have the money the work costs, in place of the article itself.'" On what grounds has he this right? It must be because he is "the head" or the larger partner in the firm. I think Mrs. Miller showed a highly commendable spirit. She wanted to help her husband all she could to keep the pocket-book full. He ought to have praised her fondly when she overdid and got sick, instead of writing to you how "riled" he was.

You may remember, friend Root, that I had my wife with me at the institute at Lodi. From there we went to the Norwalk meeting, and stayed Wednesday and Thursday. The last institute of the week was at North Fairfield, some ten miles from the railroad, and the roads were very rough; so I took my wife to the depot at Norwalk, bought her ticket for home, handed her some money, and told her to get her dinner at Cleveland depot, while she was waiting, and when she got to Hudson to go to the livery stable and get them to take her home. It is 2½ miles, and she had considerable baggage. They charge one dollar for taking a passenger to my house. When I got home Saturday night, I found that wife had gone without her dinner, and *walked home*, carrying all her things. She is a match for you, I think, after reading of your eight-mile walk in last GLEANINGS. Well, she was pretty lame; in fact, I guess she has hardly got over it yet; but I am proud of her, just as brother Miller should be of his wife. She didn't walk so as to have the dollar to use as she pleased—there is no occasion for that at our house, but for just the reason that you took that long walk—because she thought she couldn't earn a dollar any easier. Now, I should like to stop here; but I must tell the whole truth while I am about it.

When I came home, Saturday night, the liveryman got a dollar at my gate. I have felt just a little mean ever since; but I am not going to try to save myself by saying wife had no business to do *her* way. And I think what really "riled" friend Miller was because—well, because he didn't help his wife clean out that strawberry-bed.

Now, friend Root, I am talking to the farmers almost daily at the institutes on this subject of the wife's just share. Some men can not stand all I say, and some say it is sound. Down in Jefferson County a good old clergyman said he liked my potato culture better than he did my theology. Again, that broad-minded Christian gentleman, Dr. Scott, of our State University, said that he and his wife had always lived on my platform, and that I was safe any way, as I would have all the ladies on my side, and all the *best* of the men.

Will every married man who reads GLEANINGS think of this matter long and carefully? Hasn't woman been punished long enough for her great sin? Isn't it about time we acknowledged her as our full equal? Would you like to have to ask your wife for every dollar you get, even if she always gave it to you graciously? Can you not manage in some way so she will feel more like a free woman, your partner, and less like a slave? Do not justice and righteousness demand this? It certainly does, friends. Many a poor woman in this country comes very close to being a slave. She has no money to do as she pleases with, except the little that she begs, although she works hard the year round, and her husband (?) carries a comfortably filled pocket-book. T. B. TERRY.

Hudson, O., Jan. 3, 1888.

Friend Terry, I am sure you are in the right of it; and I thank you for the good your article has done *me*. After reading it I went right over home to see what my wife was at work at. It was between seven and eight o'clock in the evening, and the first indication I had of her whereabouts was hearing the pump. As I came into the kitchen I found her filling the reservoir. I marched in and told her that, when I was at home, we were going to do up the work together and then we would sit down together to read, as friend Terry had exhorted us. You ought to have heard her merry laugh; and then when she got the idea that all the men-folks who read GLEANINGS were going to adopt the same plan (we are, are we not, husbands and fathers?) she laughed again. Of course, she thanked me for my good intentions, but said there was not any thing I could do. But I had made up my mind, and I am going to show her what I can do; and I wonder how many other husbands there are who will undertake the same task.

Now, in regard to that institute at Lodi: I urged and plead with my wife to go with me; but she said it was so long since she had attended any thing of the kind that she would be afraid of everybody, and would be miserable during the whole time. We argued and talked, and talked and argued; but she said she was getting too far along in life to think of going out in public, and sadly and sorrowfully I gave up the task as a hopeless one. I knew, or thought I knew, that if I could once get her into one of our conventions or institutes, she would catch the spirit of the work, and could not help falling in with it; but she declared it was out of the question, and an impossibility. Now, what do you think happened? Why, when it came time for our Ohio State Bee-keepers' Convention I ventured to suggest that she go there; but, of course, that was worse than the farmers' institute. Finally I proposed that Ernest should take his wife also, and that they two should labor with mother. Well, imagine my joy and surprise when Ernest announced that mother had consented. Why, it seemed to me almost like a miracle. The secret of it is, that Ernest's wife is used to going about in cities, and has a natural tact for going among people, or anywhere she wants to go, and she always feels perfectly at home too. Well, the convention turned out just as I *expected* it would. My wife enjoyed it as she has not enjoyed two or three days for many a long year; and when we got home she said that, if it were not for the expense, she would just like the fun of going with me to every convention I attended. Why, my friends, it is worth *every thing* to achieve such a victory. These hard-working women who have stayed at home so long, scarcely dream of what God has in store for them if they would go out into the world and take hold and help in the great affairs of our nation and our different industrial institutes.

Friend T., just tell your good wife, please, that she and I are going to be friends from this time forward. I am sorry if she overtasks her strength; but I am glad to know that she enjoys even hard work, when inspired by the thought that the pay is *a dollar an hour*, or even more. Sometimes, when we hear of great doctors or great statesmen receiving a dollar an hour for their services, we are tempted to think such chances will never fall in *our* path; but I tell you, if we have our thoughts about us there are opportunities coming up every little while where we can save in just the way you have indicated, to the extent of even a dollar an hour; and a penny saved is a penny earned. I too felt like criticising our good friend Dr. Miller for using the word "riled," even in pleasantry. But I have not a particle of objection to the word when the men-folks apply it to themselves in the way you put it. We ought to feel *riled* a *good deal* when we are not willing to make as much exertion to keep the pocket-book well filled as our comparatively weak, patient, and hard-working wives do every day of their lives. Mrs. Root is going out in the world with me more during this new year of 1888 than she ever did before (a kind Father permitting); and my heart bounds now at the very thought of having the companion of my earlier years side by side with me as in those early days. We two have raised a family of children, and they now have grown up so as to take care of themselves pretty well. Why *shouldn't* we enjoy going about together, as we used to do — yes, even *before* we were married? and I shouldn't wonder, friend Terry, if she and I should make *you* a call, say when the potatoes are looking best. A year ago she felt afraid to meet even Mr. and Mrs. Terry, because she was not acquainted with them; but since the experience of that Ohio State Convention she is quite ready and willing to go anywhere that I want to go. It seems just wonderful even now, to think of the change that was wrought in just three short days.

AN ESSAY READ AT THE OHIO STATE CONVENTION BY DR. TINKER.

THE SECTIONAL BROOD CHAMBER.

ACCORDING to the published programme of this convention, it appears that I am to discuss the advantages of sectional brood-chambers. If it had been announced that I was to discuss the advantages of sectional hives, we should be dealing with a practical subject, one with which every bee-keeper in the land should be familiar. But the subject in hand is one in sore need of discussion, since, for some cause, very little has appeared in our bee-journals to enlighten us concerning it.

My first season's experience with sectional brood-chambers seemed very favorable. It happened to be an extraordinary season with us, and any hive with good management would have made a fair record. The past season was not a good one, and the defects of the new hive were apparent in many things. As compared with the Simplicity hives, of which I had seven in use, they were a marked failure. The bees in the Simplicity hives of my neighbors also did better. They not only had more bees all through the season, but made more surplus, and stored enough for winter, while the bees in the sectional brood-chambers had to be fed for winter.

I am reluctantly compelled to make this confession, partly because of my own disappointment in these hives, and partly because of the kindly feelings I entertain for the inventor.

Now, my friends, I will give in detail my experience with the sectional brood-chamber, and my reasons for abandoning it. In the first place, the horizontal half of a brood-chamber is too small for a swarm, too small for a colony in the fall, and too small for wintering. It is too small for a swarm, since, with a queen-excluding honey-board, the bees will store much pollen in the surplus sections, and soon dwindle down to the size of a good nucleus. It is too small in the fall, since the bees are limited in space for stores and brood, and become too weak in numbers to winter to the best advantage. It is too small for wintering, since it will not contain sufficient stores to winter the colony and make a respectable start in brood-rearing in the spring. Thus it will be seen that one of the cases of such a hive, by itself, is of no value in the hands of the practical honey-producer. It is required that both parts of the brood-chamber be used together to make any thing like a success of it. But if they are so used, the following difficulties arise: In the spring, the colony breeds up slowly, and without much attention will not get ready for the harvest. When at last it does get ready, if the honey-flow is extra good the bees proceed to fill up the horizontal space with brace-combs, and fill in with honey. The bee-keeper now thinks to interchange the sections and bring the brood to the top, but finds a strong lever is required to pry the hives apart. He quickly finds he can neither interchange the parts nor close the hives without killing hundreds of bees. They pile upon the broken surfaces, and a smoker is required in order to cut away the honey. If robbers are troublesome, it becomes a serious matter, and the bee-keeper soon gives up the interchanging business as a bad job. It seems that bees do not build brace-combs to the same extent between whole brood-chambers, tiered one upon the other, as between these shallow cases. After all, there is no advantage from interchanging the sectional parts, since bees will carry the brood upward and breed just as rapidly where no interchanging is done, as where it is. As the season advances, the bees put all the honey, or nearly all, in the upper case, so that the whole brood-chamber is required for winter.

The "shake-out" function is a good deal easier to talk about than to carry out in practice. With black bees and a little smoking it may be done, as it does not take much shaking to get them out. With Italians, Syrians, and Cyprians, it is a very difficult matter, and the bee-keeper is easily persuaded not to try it again.

Finally, sectional brood-chambers are objectionable because of the extra expense of so much rigging for the amount of honey they contain, and there are no advantages to compensate the extra cost.

My friends, the sectional, or storifying hive, will be the hive of the future. By this I do not mean a hive with a sectional brood-chamber, for one of the parts of such a hive is only half as large as the standard brood-chamber, whose capacity, as fixed by fathers Langstroth and Quinby, is 2000 cubic inches of space, which will contain, in suspended brood-frames, about 1350 square inches of comb. I have already shown that the half of such a brood-chamber is too small to be of any practical use by itself. Nothing less than a capacity for 800 square inches of brood-comb is deserving the name of brood-chamber, and such a one may be successfully used. I mean instead, a hive made up of two, three, or more brood-chambers tiered up one upon the other, or, as our English brethren term it, "storified." As this latter term is more elegant and expressive, I shall use it.

Storifying hives have many advantages over other kinds of hives. I have no doubt that the popularity of the Simplicity hive is due more to this one feature than any other. We have had them in use in this country for many years, but it is only within the last few years that we have fully appreciated this admirable function. It is highly significant that our English friends are placing so much stress upon this point. Of late they have given no premiums to any but storifying hives.

In this connection I have but one suggestion to make, and I am done. It is, that, if the Simplicity hive were cut down to take a 7-inch brood-frame, it would be nearly perfect as a storifying hive. It would then be just right for a swarm with a queen-excluding honey-board; it would be just right for wintering, and it could be storified at any time in the working season, to make a large hive according to the necessities of the bee-keeper.

New Philadelphia, O. DR. G. L. TINKER.

Thank you, doctor, for the very faithful report of your experience with the shallow brood-chambers. I would suggest, however, that I think friend Heddon has some arrangement for preventing the building of brace-combs between the upper and lower sections. At the Utica Convention we had a friend present who has used 41 of the Heddon hives during the past season. He used, also, about the same number of hives with the large Quinby frames, if I am right, We could not get him to make any sort of speech, but he would answer questions, as many as you might ask. His experience was rather in favor of the Heddon hive. He had some trouble with pollen in the sections, but it was only after he had lifted up the first tier of sections, and put another tier under it. Where new swarms were hived into a single section of the Heddon hive, he said the bees did go right into the boxes, and put all their honey there, filling the shallow brood-chamber almost solid with brood. When he attempted to build up colonies in the spring, however, in the shallow brood-chamber, he did not succeed so well.

HOW SHALL WE WINTER OUR BEES?

INDOOR VS. OUTDOOR WINTERING, AND THE ADVANTAGES OF THE FORMER.

In my report of the Ohio State Bee-keepers' Convention in last issue, I made mention of Mr. H. R. Boardman and his manner of securing comb honey. Our older readers will remember that Mr. Boardman has been for many years one of the most successful men, if not *the* most successful in wintering bees in the Northern States; and, in fact, he winters hundreds of colonies, winter after winter, without any loss worthy of mention; we can therefore afford to read with much care the following, which he read to us in the form of an essay, at the convention:

AN ESSAY, READ AT THE OHIO STATE CONVENTION, COLUMBUS, JAN. 11, 1888.

There has always been a feeling of insecurity in bee-keeping as an occupation, on account of the uncertainty of wintering. This question settled, and some sure and reliable way of wintering provided, the business will be placed on a firm basis beside the other industries.

The ground has all been gone over so many times, that it would seem useless to attempt to present any thing new or interesting; and yet the wintering problem has not reached its solution. Indoor and outdoor wintering have their advocates, and both alike have their record of successes and failures. Outdoor wintering is among my earliest, and, I may also say, my saddest experiences in bee-keeping. The most important factor in the wintering problem is climatic influence. There are others important that come within our control; but the influences of the weather we can at best only modify.

Cold does not kill the bees; but it comes in contact with the warmth produced by the living colony inside the hive, and condensation of moisture ensues.

Moisture, combined with the cold, furnishes one of the most demoralizing and destructive conditions with which we have to contend in outdoor wintering, both upon the bees and the stores. When a colony is so prepared that an excess of moisture accumulates within the hive, the stores, both honey and pollen, especially if unsealed, are contaminated by these conditions, and rendered unfit for the bees; and no amount of packing or protection against the cold will improve these conditions. A large per cent of the loss of colonies that have been specially prepared for outdoor wintering is undoubtedly the result of improper preparation. Colonies exposed to the severest cold, in climates much colder than ours, often winter in good condition without any protection whatever; even when subjected to the most reckless exposure in old dilapidated hives, crumbling to pieces with age, and split and seamed from bottom to top, colonies have wintered year after year, for many years, while others, protected in the most careful manner, according to the most approved methods of modern bee culture, have died.

We are perplexed and astonished at such results. The existing conditions were not those anticipated. The only conclusions are, that the favorable conditions in such exposed colonies that wintered well overbalanced the unfavorable conditions; and, also, in such protected colonies that perished, there was a preponderance of unfavorable conditions, or, in other words, that such exposed colonies were in more favorable condition for wintering than the carefully protected colonies. This sounds strange, but is it not true?

I have often observed, that if the stores are of good quality, and remain in good condition, that the bees will also keep in good condition and winter well; while if the stores are in bad condition, no amount of protection from the cold will avail in preserving the health and vitality of the colony. Even stores of inferior quality, if in good condition, are not necessarily fatal to the bees, if other conditions are favorable. Mr. Hutchinson, in *American Bee Journal*, page 650, says, "I have yet to lose a colony having cane-sugar stores, and wintered in a warm cellar, and by the method I now employ." Does Mr. H. know that the same colonies would not have wintered well by any other reasonable method?

Mr. R. L. Taylor, at the Chicago Convention, reported in *A. B. J.*, p. 776, says: "I am confident that I *can* winter any fair colony well, on stores, which are certainly good, by any of the approved methods." Who doubts his ability to do the same? Mr. Taylor also says, "I am satisfied that I can not winter a colony well on stores that are decidedly poor in quality, by any method with which I am acquainted." Who can tell me how to do it? Stores may be so decidedly poor in quality that bees would not winter upon them by any method; but I have an abundant evidence that stores decidedly poor in quality, if preserved in good condition, will not necessarily produce serious results, if aided by other favorable conditions.

I am aware that the results of indoor wintering are far from being uniform, and are often very far from being satisfactory. Disastrous losses are not infrequent, even with apiarists of experience. Success depends as much upon the careful attention to details of preparation as does outdoor wintering.

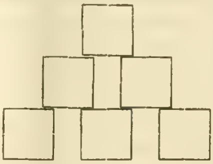
Indoor wintering is my preferred method. It enables me, by my present methods, to secure all of the conditions favorable to wintering, both to the bees and the stores, with more certainty, and, at the same time, with less labor and expense, than the methods employed in outdoor wintering.

VENTILATION.

In the construction of my first bee-house I gave much attention to the ventilation. I had ventilating-tubes put in for the purpose. This was based upon theory. I have been compelled to change my views very much upon this subject.

My ventilators are now all taken out, being worse than useless, and I now employ no special means of ventilation whatever for my bee-rooms. But the most ample ventilation is given to each colony by leaving the bottom of the hives entirely open, and placing them upon stringers, or, as I now place them, one upon another, with an open space between, in such a manner that each hive is directly over the open space below. This gives what I term downward ventilation. It also affords an opportunity for all dead bees and rubbish to drop out of the hive.

[Right here the speaker piled up a series of sections to illustrate his idea, as shown in diagram.—ED.]



Of course, it would not be a matter of prudence to leave the bee-rooms closed throughout the season, disregarding all circumstances. I visit them on tours of inspection as often as I think occasion requires, and at the approach of warm weather I frequently leave the doors and windows open at evening and morning, in order to keep the temperature from getting too high. There has been, during the past few years, some extravagant notions in regard to proper temperature of bee-houses and wintering repositories, and some immoderate reports and statements have been made that are well calculated to mislead even those of some experience. Some of the advocates of high temperature for wintering have gone to unwarranted extremes. I am myself convinced, by a liberal experience, that a high temperature is important to the welfare of the colony, late in the season after brood-rearing has begun. But 50° to 55° I shall explain as the maximum, and 60° as the extreme of high temperature. It is well to avoid extremes of temperature, but I am not quite sure that uniformity is essential or even beneficial. I should prefer that the temperature go not below the freezing-point, nor remain very long near it. But I have never been able to discover any very serious results from a low temperature, if not too long continued.

The use of artificial heat in bee-rooms in winter has attracted some attention. I have had considerable experience in its use, and at one time I became quite enthusiastic over it. But I do not attach as much importance to it as formerly. There are times during a long cold spell when it may be employed with benefit. I dispense with it in several of my apiaries entirely, and the comparative results in wintering show but little difference. I prefer to have the rooms perfectly dry, and sometimes I use lime on the floors to secure this condition.

East Townsend, O. H. R. BOARDMAN.

At the Utica Convention, the general tenor of the facts brought forward seemed to indicate much like the above. We have had our vehement advocates of a high degree of temperature, and we have had others equally vehement for a *low* degree; but many experiences seem to indicate that bees may winter successfully through a wide range of temperature, say from 30 degrees up to 75. Most people, however, would fail—or, perhaps, I should say most cellars, with a temperature that very often goes above 60, as friend B. puts it; and it would want good strong colonies and a very good management to have bees do well where the temperature was very much of the time below 35; and we might almost say the same in reference to ventilation. If other things are favorable, bees often winter well with the most abundant ventilation, and from that clear to the other extreme of what many would call no ventilation at all. Friend Doolittle, it seems, has arrived at about the same conclusion as friend Boardman; and Mr. P. H. Ellwood, at the Utica Convention, expressed much the same views. Most cellars or caves afford all the ventilation that is needed, without any particular ventilators being provided. Mr. Ellwood made a remark something like this: "A hundred colonies of bees do not require any more air than a good strong man." Well, a man will work with comfort, week after week, in almost any ordinary cellar, without any special pains being taken to provide ventilators. If you put in sub-earth pipes or ventilators, so as to send a draft of air across his back, he will be pretty sure to stop them up, especially during the winter time, about the first thing he does.

THE CHAPMAN HONEY-PLANT.

REPORTS IN REGARD TO IT DURING 1887.

THE following letters were forwarded us by friend Chapman; and, by the way, we want to say that we shall be very glad indeed to get reports from all who have tested this new honey-plant, especially where they have tried them in patches of a quarter of an acre or more.

Friend Chapman:—Your honey-plants arrived last spring in due time, and found due attention. Every plant grew and bloomed; some are in bloom now. The blossoms were sticky with honey during the summer months, and they were industriously made use of. Up to date I never found the blossoms without bees. I consider your honey-plant quite an acquisition to an apiary, and am grateful for your present. CHAS. F. MUTH.

Morristown, Shelby Co., Ind., Sept. 16, 1887.

H. Chapman:—The plants I got from you have done finely, and the bees are on them all the time. It is a wonderful plant. Our root had 20 balls upon it at once, and most of them as large as hens' eggs. They have been in bloom since July 15th, and more coming. I showed it in full bloom at the State Fair to bee-keepers, and they thought it a wonderful plant. You will hear from them in the spring. JAMES JARDINE.

Ashland, Neb., Sept. 14, 1887.

H. Chapman:—This is our first season with the Chapman honey-plant; and taking into consideration the drought, and failure generally of other plants in this locality, we give it as our opinion that the Chapman honey-plant is all that is claimed for it. We have seen nothing that equals it.

J. J. MARTIN & CO.

North Manchester, Ind., Sept. 15, 1887.

WHAT TO DO, AND HOW TO BE HAPPY WHILE DOING IT.

Continued from Nov. 15.

CHAPTER XLIV.

Seek, and ye shall find; knock, and it shall be opened unto you.—MATT. 7:7.

I believe the above text is generally understood to refer to spiritual gifts; but it seems to me there can be no harm in applying it to any thing that is praiseworthy, and pleasing in the sight of our heavenly Father; and especially do I feel that it may apply to the very important matter of investigating and searching out the gifts he has provided for us through plant and animal life, in the way I have exhibited in the pages of this book I have gone over. In Chapter XXXVI. I told you of a visit to Mr. Frost's establishment at Albany, N. Y., and I also gave you a picture of his asparagus-house. Well, in talking with Mr. Frost in regard to lettuce culture and kindred topics, he said that the largest industry in lettuce-raising that he had any knowledge of was at Grand Rapids, Mich. More than fifty new greenhouses had just been erected, specially for the growth of lettuce. During the same trip I visited Peter Henderson, as you may remember; and while there I called on Mr. John Hudson, a neighbor of Peter Henderson's. In Henderson's latest edition of "Gardening for Profit" he gives a picture of John Hudson's six great greenhouses, built on purpose for lettuce-raising. Well, I found these six great greenhouses occupied entirely with *radishes*. Mr. Henderson explained it by saying that the rot had attacked the lettuce so as to make it a failure in their vicinity, and that his neighbor Hudson was forced to abandon it, even after those expensive greenhouses, costing not less than ten thousand dollars, had been erected. "Gardening for Profit" also mentions this great difficulty in lettuce-growing around the city of New York. When I heard of it I at once wondered how it was that the folks in Grand Rapids manage to avoid the rot. Well, at this session of the Michigan State Horticultural Society, held Dec. 5th, Secretary Garfield made mention that Grand Rapids had developed a great industry in lettuce; that they were shipping it, even during the winter months, by the ton, and that their product went to all points in the United States. When I asked for some explanation as to why *their* lettuce should be superior to any raised elsewhere, I was told they had a *better kind* than was to be found elsewhere in the world. I thought at the time this was a pleasant joke, but determined to visit the Grand Rapids greenhouses before I went home. I was rewarded for my pains by seeing the most beautiful sight, *to me*, that ever graced a greenhouse, and you know, friends, that is saying a great deal. I was indebted to Mr. Henry Smith, a florist, for driving me out to some greenhouses owned by Mr. Eugene Davis. First we saw greenhouses containing little plants just bursting through the soil. They came up so evenly, and looked so thrifty, it was a beautiful sight. Further along, the plants were a couple of inches high. They had been transplanted into rows; and the even growth and the beautiful white foliage giving promise of what the mature crop might look like, brought forth my enthusiasm. I was obliged to make my visit after dark, in order to meet my train, and we were shown through by our good friend Davis, by the light of a lantern. When he opened another one of his greenhouses and showed us a great long bed of the lettuce, ready for market, standing nearly a foot high, with a sort of silvery whiteness that almost made them shine in the darkness, just beyond the dim light of the lantern, it seemed to me one of the most beautiful sights that I ever met. It was not only the beauty of the plants contrasted with the icy winter weather outside, but it was the fact that friend Davis had conquered all the obstacles in lettuce culture so as to be able to show us greenhouse after greenhouse full of plants that were absolutely perfect. I felt like removing my cap and making my best bow to the man who had studied the habits of the little plants until he had the whole thing completely under his thumb, as it were. He had been at work for fifteen years in developing a variety of lettuce specially suited to the demand for winter. Before going further I want to digress a little right here.

We are constantly improving in fruits, flowers, and vegetables; in fact, we begin to be surprised at the possibilities that lie before us in this line of work. It is just now in this nineteenth century, or in the latter part of the nineteenth century, if you choose, that it begins to be apparent we can have almost any thing we can ask for in fruits, flowers, or vegetables, if we work hard and seek diligently, in the language of our text. People just now begin to believe that the promise, "Seek, and ye shall find; knock, and it shall be opened unto you," is true. Not only that, they begin to comprehend what we might have but have not at present got. At our farmers' institute, in speaking of this matter, I turned to an expert in the line of berries and small fruits. Said I,

"Mr. Longnecker, how much would fruit-growers give now for a strawberry that combines *all* valuable qualities?"

"I could not say, Mr. Root; but for such a strawberry as the present times demand and are longing for, a very large sum of money would be given."

"I think I can safely say that a purchaser could be found who would pay a thousand dollars or more for a *couple of plants*. Am I not right, friend L.?"

He nodded his head. Well, friends, strawberries are only an illustration. The same matter is coming up, not only in small fruits and in vegetables, but earnest, faithful, hopeful men—ay, and women too—are at work in many lines of animal and vegetable life. At our State fairs you will see small light horses, specially for speed. They have evidently been bred—or, if you choose, made to order—for speed, leaving out every thing else. A little further along you will find in the stables, horses specially for the heaviest kind of team work—great massive frames, and legs and feet that are simply wonderful. They are gotten up—in fact, they are the work of years—with the special point in view of bearing great burdens and doing it easily. The mayor of the city of East Saginaw, Mich., invited the members of the horticultural society, and the bee-con-convention as well (as they were held at one and the same time), to see the sights of the city. Well, one sight that impressed me was their immense powerful horses, employed in paving the streets. Why, when one of these great fellows set down his foot it was almost equal to rolling the car of Juggernaut over the paving-stones, to settle them down solidly into their places. These great fellows not only possessed enormous strength, but they were gentle and docile, and seemed to enjoy life just as much as the fleet, trim, neat little horses enjoy their work of making the best speed. These different animals were the reward of seeking earnestly in this line for what God has in his infinite wisdom placed in store for us. Think of what has been done in the line of tomatoes (since they were first discovered within the memory of most of us, to be fit for human food). We have been made happy by the great luscious Mikado that I spoke to you about at the close of Chapter XLII. While we are about it I might mention that there has been a great deal of trouble with the *rot* in tomatoes. Prof. Bailey, of the Agricultural College, Michigan, made the remark, that the small pear and plum tomatoes never rot. I instantly suggested that somebody set to work to enlarge the pear tomatoes. He said it had been done, and that the tomato was named the King Humbert. It was not full size, for the work is yet only half done. We last year raised quite a crop of the King Humbert, and discovered, as he said, that the tomato was hardly half size as yet; we found, also, that the genius who had been at work at it, in his eagerness to get size had ignored the matter of shape and color; so the present King Humbert is very awkward and unprepossessing. Very likely, however, some of you may tell me, as soon as these words meet your eye, that some brother (he may be across the ocean), has been at work to obviate this defect, and that we now have a good-sized tomato with good shape and color that has been produced from the pear tomato. We do not begin to know what is going on in this world; but our conventions and horticultural societies, farmers' institutes, etc., are doing much to let us know what is going on, and who are the faithful, earnest workers. I am now ready to get back to my subject.

Before me stood a young man, perhaps thirty-five years old, who had been at work all by himself for fifteen long years in improving lettuce. He started with the Black-seeded Simpson, and the new plant very much resembles the Black-seeded Simpson now. He not only wanted lettuce that wouldn't rot, but he wanted rapid growth, light-colored, handsome in appearance, crisp and tender, excellent in flavor, and lettuce that could be kept for ten days or more without hurting, so as to become unsalable; and, in short, just such a lettuce as the large hotels in our great cities demand. At the bee-keepers' convention, held in Chicago, Nov. 17, I saw lettuce on the bill of fare. As it was early in the season, I asked the waiter to bring me some lettuce, and he brought me a plant, beautiful and crisp, that looked as if it had just been taken from the greenhouse. It was tender as well as handsome. This hotel charges $2.50 a day for board and lodging, yet crowds of people throng its tables, mainly, perhaps, because they are sure of having something nice and appetizing at each meal. Of course, they have money to spare for such things; and while great crowds of people have money they like to pay out in this way, is it not commendable to work hard to please them, especially if they are willing to pay us for it? I might mention right here, that I did not find any *honey* at this place; but at a hotel in Grand Rapids, where their prices were still higher, I found beautiful-looking honey on the bill of fare, with beautiful tender hot cakes brought you just as fast as you took the last one from a little plate. Seventy-five cents was the price for supper; but it was a beautiful and a delicious supper. The point I am coming to is this: People who are out of work can surely find something to do in supplying the wants of those who frequent our expensive hotels; and if they work diligentty to produce a delicacy or luxury not heretofore known or generally found, they shall surely have good pay.

While we were examining the lettuce in that greenhouse, I was very curious about the manner in which he produced the new variety by selection; and he explained something as follows:

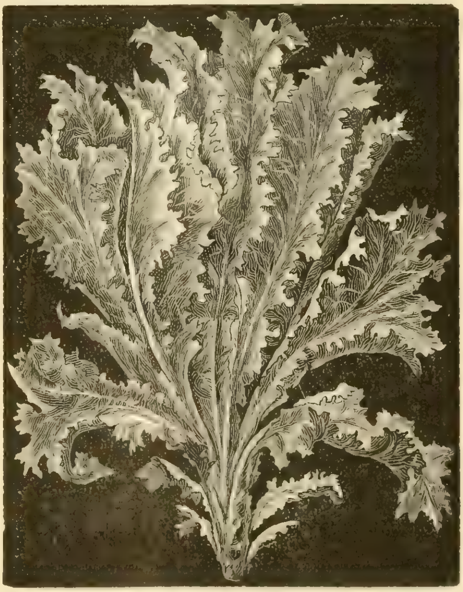
"Mr. Root, to your eyes these plants are all exactly alike. You see no odd ones, or 'sports,' as we call them; but my friend Smith, who has been in the business, can, without question, pick out plants here and there that are not true; that is, that are something else."

Mr. Smith took hold of one at once, and asked if that really came from the same seed, or whether it was another seed that got in the ground in some way. Mr. Davis replied:

"I do not think any other seed was in the ground, nor do I think any seed was dropped. The truth is, when we get in the habit of scrutinizing every plant closely, we find sports showing themselves more or less marked in every lot of lettuce we raise, no matter where the seed came from; and the same is true, to a greater or less extent, with other vegetables. To develop this variety I have taken the utmost care to secure such plants as show the marked peculiarities I wish to perpetuate; and the seed I have, would, no doubt, run down and go back in a very few years, in the hands of a careless or indifferent person."

His remarks were, perhaps, not exactly as I have given above, but were the same thing in substance. I could hardly bear to leave that greenhouse. The sight that met my gaze as I turned back for one last look was worth to me my whole trip to Michigan. But I had no excuse for taking the time of my good friends, nor for keeping them waiting longer.

Our friend Davis is in the habit, I am told, of supplying all the greenhouses round about Grand Rapids with plants or seed for this new Grand Rapids lettuce. He has made an arrangement with the proprietors to keep the seed in his own hands, and so far he has succeeded in keeping it out of the hands of the seedsmen. Now, I wanted some seed, and I felt a pleasure in paying our young friend a good price; in fact, it seemed to me that it was right and proper to reward him for what he had done in his specialty. As an encouragement in the work for others, I have decided to mention here that I paid him *fifty dollars* for *half a pound* of seed, and I told him, too, he was at perfect liberty, so far as I was concerned, to sell it to other seedsmen if he chose. I don't want any monopoly myself. Our engraver has tried to give you a picture of the new Grand Rapids lettuce.



"GRAND RAPIDS" LETTUCE, ORIGINATED BY MR. EUGENE DAVIS.

Now, I was very well aware when I paid our friend at the rate of one hundred dollars a pound for the seed, it by no means followed that any of us could raise such lettuce as he does, without the wonderful skill which he has acquired during all these years. I therefore offered him still more money to tell me all about raising it. He replied at once that he was not a writer, and did not believe that he could tell any thing worth knowing. However, I suggested that he answer a list of questions that I would propound. Well, here are the questions, and following are the answers. The replies given will probably be valuable for other plants, especially greenhouse plants, as well as for lettuce.

FORCING LETTUCE IN GREENHOUSES.

After trying different kinds of houses, we prefer the three-quarter span with permanent rails and double-strength glass, 10 by 14 or 12 by 16, with the rails 14 or 16 inches apart. The houses may be 20 or 22 feet in width, and 100 feet long; and in place of having them stand east and west, I would have them northwest and southeast, with shed on the northwest end. I would have the southeast end glass. Our reasons for this are, that it is necessary in this latitude (43° north) to get all the sunshine and light possible in the winter months. Where the houses run east and west, in the usual way, the shed begins to throw a shade at noon. With the above arrangement there would be no shade.

1. How great a depth of soil do you recommend in the benches, and do you want it any deeper for the mature crop than for starting seedlings?

The soil on the benches should be seven inches in depth; for starting seedlings, four inches will be sufficient.

2. How do you construct the bottom of the bench? If of boards, how wide would you have the boards, and how large spaces for drainage? I see slate advertised for the purpose. Do you not think it would be better than wood?

The bottom of the benches is made of rough seasoned lumber, of no particular length or width, laid close enough together so the soil will not sift through. That will be all the space required for drainage. Where lumber is very costly, I would recommend putting it in strong lime-water until thoroughly saturated, then dry, and it will last a long time. We never have tried slate, but think it would do first rate.

3. Have you ever tried growing lettuce where the soil rests directly on the ground; that is, no open spaces under the benches, and does it do as well?

We used solid beds of soil for lettuce one year, but it did not do as well as benches.

4. If the solid ground does not do as well, would you have the water-pipes or flues run under the beds so as to give bottom heat? One of our eastern growers says he has better success by carrying the hot-water pipes in the air above the lettuce.

Our houses are heated with flues running under the middle bench, constructed so as to give as even a temperature as possible. Hot-water pipes are better, without a doubt. They cost more to begin with, but are cheaper in the end. I think the location of the pipes would make little difference, so that you get an even temperature through the house.

5. If I am correct, I believe you told me you had had as good success with clean sand and stable manure as with any other soil you have tried. Now, do you mix the sand and manure together? If so, what proportion of each? Or do you spread the manure on the bottom of the bench, and place the sand on top of it? If the latter, how much sand, and how much manure?

After trying different kinds of soil we have the best success with a rich light sandy loam; in fact, there is not enough clay in it to form a crust after being wet. It is warm, light, and quick. Our manner of preparing the benches for lettuce is to take five inches of soil and two inches of *fresh horse manure*, free from litter. Place it on top of the soil; take a lath and make it as fine as you can; then with a spading-fork turn it under deep enough so that, when you set the plants, the roots will not quite reach the manure; that is, for the first crop: the second and third will not need as much manure. *Never* use the manure from blacksmith shops. We have ruined our crop by using it. Use fresh soil each season.

6. What temperature do you prefer, both at night and during the day?

The night temperature should be 45 to 50°; by day, from 15 to 20° higher.

7. Do you not find the lettuce does better when it has all the sun possible; that is, from the earliest in the morning to the latest at night, without any trees or buildings to obstruct the sunshine? Is it also true that you get larger and finer lettuce in February and March than in December or January?

Lettuce does better in the winter months when it has all the sunshine possible, so when the houses are built they should not be where trees or other buildings will shade them. In April and May, when the sun gets very warm it may be necessary to shade the glass with a light coat of whitewash. As a general thing, much finer lettuce can be grown in February and March than in December and January.

8. Can you grow better lettuce out of doors in May and June than you can in a greenhouse?

Lettuce grown in greenhouses will be much *more* tender and nice than when grown outdoors.

9. Have you, with your new variety of lettuce, got over all trouble from rot?

I have had no trouble from rot since growing the kind of lettuce we have now. It is especially adapted for forcing.

10. Do you depend upon fumigating with tobacco to keep out the green fly, and how often do you fumigate? What sort of an apparatus do you use, and what amount of tobacco do you burn up per week for a greenhouse of given dimensions?

To destroy the green fly, or aphis, cover the benches with tobacco dust. If on the plant, before setting rinse the plant in tobacco water about the color of strong tea. We usually fumigate the houses twice a week, using three or four pounds of stems to each thousand feet of glass. The apparatus for that purpose is a round sheet-iron cylinder a foot in diameter, with draft at the bottom.

11. If your lettuce is not sold as soon as it is mature in the greenhouses, how long will it keep? and if not sold at all, when it ought to be taken up, what will happen to it? Does it ever run to seed in the greenhouse?

It sometimes happens, after getting a crop grown, that the price is not satisfactory or the sales are slow, and it is desirable to keep it until the market improves. Use just enough water to keep it from wilting, and keep the temperature just above freezing, if late in the season. Give all the air you can, day and night. It will run to seed if kept too long.

12. How much water does lettuce require, and is it not better to let the beds run until they are dry enough to cultivate nicely; that is, until we should call the ground pretty dry in open air? I am inclined to think that rot is often caused by too much dampness. Do you think so?

It is important to know when to water the beds and when not to; not so much so when the plants are small as after they cover the ground. The best way to tell then is to put your hand in the soil; and if it feels damp and cold, and packs in your hand it is wet enough; if dry and crumbly, give it water, and do not water any more until the soil is in the same condition. Rot is often caused by watering too much and not giving air enough.

13. How often do you think it needful to ventilate the house thoroughly; that is, when the weather is so cold that the ventilators can not well be opened? If I keep the temperature 50 degrees at night, and about 70 degrees in the day time, is there any need of a change of air, say for a week or ten days? I suppose most greenhouses admit more or less air, but suppose we had one made very tight in order to save fuel. Again, suppose we have warm spells in winter, so there is no frost in the air or in the ground, would you advise opening all the doors and ventilators so as to let the air circulate for a while during the day; that is, providing the outside air is between 50 and 60 degrees? We frequently have such weather here, even during the winter months.

Whenever the temperature is above 70 or 75 degrees in the house it is well to give some air. Occasionally in winter there will be damp foggy weather, when the air in the houses feels close; you can't breathe well, neither can the plants. Open the ventilators and give the house a good airing. There is no need of a change of air unless it gets close and uncomfortable. Whenever you can work in the houses in comfort, that is the right temperature to keep the plants healthy and growing.

When growing a crop to sell by the pound, set the plants six inches each way. In twelve weeks it will average half a pound each. To sell by the dozen, five inches will be sufficient.

After the plants are set, keep them growing. Any sudden check, such as drenching with cold water, or too great a change in the temperature, will be apt to bring on disease. Finally, the better care and attention given the crop, the better success you will have. EUGENE DAVIS.

Grand Rapids, Mich., Jan. 10, 1888.

CHAPTER XLV.

Whosoever will be chief among you, let him be your servant.—MATT. 20: 27.

I have just returned from a three-days' session of the N. Y. State Bee-keepers' Convention, held at Utica. During those three days, for the first time in my life I put up at a hotel where they charge $4.00 a day for board and lodging. Perhaps some of our readers may smile at what I am going to say in this chapter; but I am writing for those who are inexperienced in this matter, like myself. And, by the way, I shall not be surprised if some of the young gardeners and young bee-keepers inquire if it is not a pretty big joke to advise those who have been looking for something to do, and telling them how to be happy in doing it, to go and board at a four-dollar-a-day hotel. My friends, I do not mean to advise anybody to put up at such an expensive house—that is, generally speaking; and I wish to say to you that I expect to live, and prefer to live, all my life, right among people who are working for their daily bread, and earning, say, from one dollar to two dollars a day. I do not believe in paying out for one day's board and lodging more than you can earn in three days of hard work; but for all this, there are some morals and some valuable and practical lessons to be learned in studying our great hotels. When I first saw by the programme that the bee-keepers were to put up at so expensive a house, I thought the managers had made a mistake, and I feared the very mention of it would deter and discourage a good many from attending. Now, inasmuch as I wish to say in this chapter a good deal about want of charity in regard to the existing state of things, I want to show you how much I was mistaken in my criticisms. At this hotel the officers of the convention found they could get two beautiful rooms on the ground floor, free of charge, providing the bee-men made their headquarters there. The use of these two rooms for three days would save us an expense of from twenty-five to fifty dollars, in a great city like Utica. So, even if our board did cost pretty high, we should save a great part of it in the rent of a hall. Furthermore, the hotel made a concession that brought the board down to only about $2.50 a day, instead of $4.00, and, at the same time, just as many as chose could put up at other hotels, at an expense of from $1.00 a day upward, and at the same time have all the privileges of these beautiful and convenient rooms. Under the circumstances, it would seem that most of the bee-friends would choose to patronize this hotel, but it seems that many of them did not.

Now, wherever duty seems to call me I try to look about me and discover what useful lesson God has for me to gather up, and I was not disappointed in this case. The question came up in my mind, as it has, perhaps, in many of yours, "How can anybody afford to pay *four dollars a day* for board and lodging? and how is it that such expensive houses receive patronage? What do they do to induce people to stay with them at these enormous prices?" I am going to try to answer, and through these answers lies a lesson for us all. Why is it, my friend, that you and I do not get better pay than we do now? Shall I tell you? No matter how much I travel, I always feel more or less embarrassed, and ill at ease, in going into a hotel, especially the large hotels in our great cities; and I have reason to feel that others share this feeling with me. Well, the Baggs Hotel, in the first place, is situated right close to the depot. A beautiful walk leads from where you step off the cars, through a bit of garden, as it were, right to the spacious doorway that admits you. At night, this bit of garden is lighted by gas and electric lights. As soon as you step inside you are welcomed by pleasant and intelligent-looking clerks, almost as heartily as you would be if you were visiting friends who were expecting to see you. Almost before you can ask the question, you are directed where to go and where to put your things. The nice boy who takes your overcoat looks pleased to have somebody to wait on, and he is pleased because he *is* working for the reputation of the house. There is no lack of waiters in this great hotel. There are seats right by the office, where one or more of them are constantly watching for the opportunity of making themselves useful.

Not very long ago, at a hotel in another city, the check-boy was missing, and the man behind the desk rang and called until he got angry, then ran around to the cloak-room himself, and handed out the overcoats. At that same hotel, the colored waiter who showed me where my room was, got mad and indulged in oaths and curses because one of the guests wanted a pitcher of water. At the same place, my wife asked to have a fire built in the grate. We rang twice for the waiter, then went down to the desk, and pretty soon a man came up with a bucket of coal and some kindling. He spilled the coal on the carpet, scattered the ashes everywhere, and when he succeeded in making a fire, he went off and left my wife to brush up. She declared that nothing could induce her to have such a man around at *any price*; but when we settled our bill, it so happened that we had to pay fifty cents extra for having a fire built in this manner. At the breakfast-table a slovenly-looking girl brought me a cup of *cold* coffee. When I suggested to her that she had made a mistake, and brought me cold coffee, she pertly told me I was mistaken—the coffee was all drawn from one urn. All this was at a house where they charge $2 50 a day. I do not mean to say you can not get good accommodations for $2.50 a day, but I want to suggest that there is a great field for improvement in this line.

At the Baggs Hotel you never need ask for a fire, for the whole establishment is warmed by steam and neat base-burning coal-stoves, all the while, both day and night. You can lay off permanently your overcoat, and your cap too, and go anywhere, without any intimation that there is zero weather outside. This is accomplished by having extra sashes to the windows—storm-sashes perhaps you might call them. These sashes were put in from the outside, and held by suitable fastenings, leaving nearly a foot of space between the regular windows and these storm-sashes. No frost was to be seen on any window. Within the hotel you find a postoffice, railway ticket-office, telegraph-office, telephone-office, and, in fact, almost any thing anybody wants to do business with. If any one seemed to be looking inquiringly for something, a smart boy tripped up and inquired, "Were you looking for something, sir?" Well, now, no matter how inexperienced or green the stranger seemed to be, this boy never smiled. He took it as a matter of course, and gave the fullest explanations. At the supper-table a friend next to me made the remark that he had only so many minutes to make his train. As the supper he called for required a little time, he began to worry about losing the train. A bright, intelligent colored man who stood near overheard him and replied at once, "Oh! we will take care of that, sir." And he beckoned to a fellow-waiter, and asked him, in courteous tones, to find out if the train was on time. He was back in a twinkling, saying they were fifteen minutes late. So our friend had ample time to finish his supper at leisure. The clerk furthermore informed him that he need have no anxiety in regard to the matter. Said he, "We will take the responsibility of putting you on the train in ample time." The ticket-office in the hotel had telegraphic commuication in regard to all the trains leaving. This ticket-office, although it seemed to be fully as large and comprehensive as the one across the street at the depot, was managed by a boy. This boy would consult maps, make inquiries, and give any traveler the fullest particulars in regard to any thing he wanted to know. This of itself was in bright contrast to most of the agents at the ticket-offices in our great cities. The boy was courteous and friendly; in fact, the clerks and waiters, the whole of them, made you feel that your were associated with nice, sociable, pleasant, intelligent people, who had the spirit of the text I have quoted, in their hearts—"And whosoever will be chief among you, let him be your servant." It is true, they have an abundance of helpers; but instead of being crusty to each other they seem to delight in working in harmony, and with a pleasant good nature toward their fellows, as well as the travelers they entertain. I tell you, my friends, there is a big contrast between this state of affairs and being waited upon with scowls and surly cross words. During my three days' sojourn there I almost *forgot* that we have to meet rudeness on the great thoroughfares of travel. I wonder if our railway officials could not learn some valuable lessons by stopping at the Baggs Hotel.

When I started to go home, my train was late on account of the storm. I inquired at the exit gate, of the man who took my ticket and punched it, about how long the train was behind time, but he turned his head in another direction, with a sort of scowl on his face; and after waiting so long I began to fear he was offended, and didn't mean to answer at all, he jerked out, "Half an hour, or thereabouts." After I left him I found on the bulletin-board, written in chalk, the train was forty minutes late. Of course, *he* knew what was written on this board. Why couldn't he have replied promptly and pleasantly, "About forty minutes"? I then made proper inquiries for a sleeping-car ticket, and was told that I must get it on the train. On the drawing-room car I applied to both the porter and conductor. They told me I should have to wait till we got to Syracuse, and the conductor of the train declared I need have no anxiety, for they always had plenty of room on the sleepers. When I got to Syracuse, the sleepers were all taken, and the conductor of the sleeping-car was abusive because I tried to explain to him that I was in nowise remiss. In fact, he would not hear a word. I waited, however, till his conscience troubled him a little because of his ill treatment of a guest; then I sat down by him, and explained, and he admitted I was right and that he was wrong, and made arrangements to give me the berth I was entitled to. Here four different officials were short and uncourteous, and one of them let his temper get the better of him, and was abusive, when he was wrong and I was right. Do you not think, my friends, there is room for improvement in the line of our text? Well, now, don't let us lose the point of our text by concluding that *we* are all right, and that our neighbors are all wrong. My friend, *you* are very doubtless suffering the consequences of a lack of the spirit of this little text. I *know* I am suffering in the same way, and I have made huge resolves, since leaving that hotel, that I would learn and practice wisdom in the future.

Mr. Baggs, the proprietor of this hotel, is a large farmer, and he is a great lover of choice stock. The bills of fare are printed every day for each meal. In fact, they are a little bit of daily paper, published three times a day, and on each one you see something in regard to his farm that furnishes butter, milk, and cream, from his choice Jersey cattle. Potatoes, celery, and vegetables in general, are mostly of his own growing, and the very best of their kind.

The whole house evidently takes pride in showing the great traveling public how well they can do. After you have indicated what you would like, on the bill of fare, the waiter often suggests, "We have some very choice beef-steak this morning; sha'n't I bring you a nice piece?" or, "Wouldn't you like some of these eggs?" and he shows you a new dish in this line, cooked with rare skill. The buckwheat cakes and maple molasses were both nice enough to call forth exclamations of surprise. The beef-steak was about the finest I ever tasted, and all these dishes are garnished with pretty sprigs of lettuce, parsley, celery, or something of that sort. This gives work for the market-gardener. Notwithstanding all these things are done so nicely, I didn't see anybody in sight who was looking after things, or bossing things. There seemed to be no need of any one to give orders, or to reprove slackness. Here is another indication of good generalship. The master-spirit was nowhere *visible*.

Another thing that pleased me in regard to this hotel: The customs and conditions of the house were made known to everybody by printed cards neatly framed. In different parts of the hotel one of them announced,

THIS IS A FOUR-DOLLAR-A-DAY-HOUSE.
BREAKFAST COSTS ONE DOLLAR.
DINNER COSTS ONE DOLLAR. | SUPPER COSTS ONE DOLLAR.
LODGING COSTS ONE DOLLAR.

This was evidently to prevent mistakes or blunders; for some, unaccustomed to these prices, might go into the hotel and get meals and lodging where it would be very inconvenient to pay the above prices, or where they might be in great distress on account of the misapprehension. Other cards direct you to the postoffice-box, telegraph-office, railway ticket-office, and all the various places about such an establishment that any one might need. During the convention, at one time I felt sorely the need of my half-hour nap before meals. I found a pleasant parlor, with plenty of lounges; but one of these placards very kindly announced that visitors were requested not to recline on the lounges, but to go to their rooms. Now, although I sought my room at an unusual time of day, every thing was in perfect order. A little open grate had a cosy little fire of hard coal, so unique it called forth exclamations of surprise. Not a particle of dust or disorder was visible anywhere; and I found this dainty little coal fire in the grate during every hour I visited the room during my sojourn of three days. I do not know who took care of the room, for no waiter was ever visible. The whole establishment was still and quiet, for guests seemed to feel they were to be ladies and gentlemen in the truest sense of the term. Yes, they behaved themselves like Christians, for aught I could see, and that is the way the establishment succeeds in getting custom at these great prices. They *made money* by being *Christianlike*.

Whosoever will be chief among you, let him be your servant.

I tell you, friends, it pays in dollars and cents to carry the spirit of Christ with you. Where did this great hotel get such a corps of helpers? I presume they pay big prices for them, because each one in his line is an *extra-good* man or woman. Very likely a system of thinning out had been rigidly practiced in order to have none but civil, courteous, and obliging helpers. At no time during my stay did I hear any thing like an impatient word. More than that, pleasant looks and pleasant words meet the guests at every turn. You know I am always up early mornings, so I had a good opportunity of observing the machinery of this establishment start up. In the same way I have seen the machinery of large hotels start up many times before, but I never before saw a place where there were no impatient words nor cross looks early in the morning. The clerk at the desk complimented me on being an early riser, and gave me a pleasant good morning, calling me by name. I was the first at breakfast, except those who breakfasted early in order to take the trains. The waiters made some pleasant apology about not having a *full* bill of fare ready, but gave me a very nice breakfast; and these same waiters were sufficiently intelligent to inquire about the convention and the bee-keeping industry at large. On one occasion I opened the wrong door and almost ran against the boy who was blacking boots. He pleasantly took in the state of affairs, told me it was all right, and left his work to take me through his room to where I wanted to go.

The water-closet arrangements of this establishment were the most perfect I have ever seen anywhere; but they operated, as usual, by water. No smell, not even a faint trace, could at any time be perceived anywhere about the premises. Not only does the water wash away every thing immediately, but a ventilating-shaft with proper appliances draws a current of air through the room in such a way as to carry all vapors down and out of the way instantly.

HEADS OF GRAIN
FROM DIFFERENT FIELDS.

BEES FANNING WITH THEIR WINGS IN MID-WINTER.

A WEEK or two ago one of my hives leaked a little, so as to slightly wet the chaff cushions over the bees. On the morning of the 15th the sun was shining bright and warm, so I concluded to change the cushions and give the bees dry ones. When I lifted up the cushions I found the bees so stiff they could scarcely move, yet as many as could do so, perhaps 200, had gathered to the top of the frames with their heads turned down between the frames, and their wings fanning, just as they do at the mouth of the hive on a hot day. I should like to know what they meant by this fanning, when they could scarcely crawl because of cold. Were they fanning out the dampness, trying to dry off the cushions, or were they wanting more ventilation from the entrance?

Concord Church, W. Va., Jan. 23. T. K. MASSIE.

Friend M., without being present to look at the bees I should say there was nothing the matter with them at all. They were in their natural dormant wintering condition; and when you suddenly pulled the cushions from over them they were rubbing their eyes and slowly waking up, instead of being stiff with cold, as you put it. The 200 bees that were on top fanning were nearer the center of the cluster, and were warm enough to begin to move their wings. I presume you found them all right after they had been opened to the light a little while, did you not?

THE GREAT ABUNDANCE OF FALL BLOOM, ASTERS, AND GOLDENROD.

You thought it would be a pretty sight to see the bees humming over a part of an acre of asters. If you had only been here in October you would have been delighted. Such a mass of white and yellow bloom (goldenrod and aster) as covered a great many acres! There is generally a great deal of the former; but the asters, I think, got ahead this time. Farmers who pay no attention to bees or honey, remarked that they never saw any thing like it before —those "little white flowers," they called them. Every place I went it was the same—in old fields, in clearings, by roadsides, everywhere. Some were not more than six inches high; others two and a half feet. I think they were in bloom about five weeks, goldenrod about three.

The honey crop in June was almost an entire failure. Cool weather and frost hindered the bees from work some in October, but all filled the brood-chamber, and a number of the colonies filled sections above. It was cool that some swarms seemed unable to build their own comb, and were filling every little starter with honey. Then I gave them foundation. Many of the combs are only partly filled and now are candied. I will try feeding it to them in March. We like GLEANINGS much. We do not think we could do without it.

Bethel, O., Jan. 2, 1888. MARY L. BECK.

"BEE-BAIT" DESTRUCTIVE TO BEES; WHAT SHALL BE DONE?

I learned from a farmer, on the market-train, of the severe loss of bees, and that nearly one-third of the bees in the whole country around here had died from the effects of bee-bait. It draws the bees for half a mile, and sours their honey so that 100 lbs. of honey in this state will not carry them through the winter. It sickens and kills the bees! Bee-hunters are to blame for this. Two bee-hunters near Kittanning, Pa., damaged the bee-interest for a circuit of 30 to 40 miles. Why do you not urge such legislation as will prevent effectually such slaughter of bees? During the cider-making season, the bees suck the sweet cider, and the sour pumice has as bad an effect as the bee-bait. Please call attention to this great evil to the bee-interest.

FARRELLY ALDEN.

Pittsburgh, Pa., Jan. 14, 1888.

Friend A., your farmer friend is surely mistaken. There is nothing, I am sure, that will draw the bees for half a mile, that will sour the honey, with such disastrous results as you state them. Where bees get large quantities of cider from cider-mills, it is very apt to give them the dysentery; but it does not always have this effect. We have had cider-mills close by our bees, and there have been times when they would carry away a barrel of *sweet* cider as fast as it could be pressed from the cheese in the press; but we wintered nearly every colony, for all that.

MORE ABOUT THE JELLY-TUMBLERS.

On page 938, Dec. 15, is an article on honey-tumblers. We have here in Minneapolis a glass pail with tin cover, the same as jelly-tumbler covers, that holds exactly one pound. The cover is stamped, "Old Oaken Bucket." There are two sizes of the pails. It is the larger size which holds a pound. These pails cost 60 cents per dozen by wholesale, while jelly-glasses cost from 27 to 30 cents per dozen. The grocers in Minneapolis who handle our honey, as a rule prefer jelly-glasses which hold 9 or 11 ounces of honey, they paying us ten cents for the smaller and eleven for the larger by the dozen. They can get all the California honey they want in 60-lb. cans for 7 or 8 cents per pound. We have been selling honey this way for three years without changing the price, and have sold more this last year than ever before.

This season was just fair for honey; very little clover, but plenty of basswood and fall honey. Those who attended to their bees had a good crop of honey. Those who did not, got very little.

Bloomington, Minn., Jan. 3, 1888. E. R. POND.

Friend P., I am glad to hear you speak a good word for the old oaken buckets; but you will notice by our price list that *we* charge only $4.00 a hundred for the large size and $3.50 for the small size.

HOW MUCH HONEY FROM 100 NUCLEI STARTED THE FIRST OF MAY, ETC.

How much surplus *comb* honey per colony is it probable could be obtained (preventing swarming) in a white clover and basswood community, from 100 nuclei, each nucleus containing 2 lbs. of bees and queen, the first of May, and allowed to build up on fruit-bloom, and stimulated by feeding between fruit-bloom and white clover? Each nucleus is to be supplied with 10 frames, filled with foundation; the 100 in one place, or separated into 4 apiaries of 25 colonies each. WM. M. YOUNG.

Nevada, O.

Friend Y., there are so many conditions I do not know how we can arrive at any sort of an answer. The season might make all the difference, from nothing at all to 100 lbs. per nucleus. Then, again, the man who manages them may make almost as much difference. The locality will affect the result again; and, still further, a greater increase may give even more pounds of honey. Two pounds of bees and a queen is an average colony of bees the first of May; that is, if you include some frames of brood also.

THE CHICAGO CONVENTION, BY ONE WHO WAS THERE.

The following spicy little poem from the pen of Eugene Secor, Forest City, Iowa, we take from the *A. B. J.*, page 755.

At Chicago they met, a right jolly set,
  On a soft balmy day in November;
Such a "buzz" and "roar" I heard once before—
  At an old cider-mill in September.

From the West and the East, to this saccharine feast,
  Came the "workers" cheerfully "singing;"
And though each had a wish to "sip" from the dish,
  But few were inclined to be 'stinging."

They talked about bees—their legs and their knees—
  Or the God-given nectar in flowers;
Of its value as food; of bareheaded brood,
  And the late sad failure in showers.

Our "countrified ways," the reporter says,
  Betrayed the bent of our calling;
At this we're not mad, but exceedingly glad
  That our looks far exceeded his scrawling.

Such a constant "hum," without "smoke" or drum!
  'Twas said each had a "bee in his bonnet;"
But whether that's so, one thing I do know,
  The "hive" had a MILLER upon it.

The MASON bee took the MILLER to COOK,
  Who adjudged, from its size and demeanor,
There was no need to tread on, nor even put a HEDD-ON,
  As it lived on sassafras ROOT—a gleaner.

For three days and nights, surprises, delights,
  Made us happy as bees in sweet clover;
Tis a bright GREEN spot, not soon forgot—
  In memory's HUTCH, a rich trover.

'Twould fail me to tell how the "honey-dew" fell
  From many sweet lips, though human;
But I, for one, when convention was done,
  Went home from Chicago a NEW-MAN.

FINDING QUEENS.

I tell you, I am an *expert!* I can get out the honey, and I can eat my share of it—may be more; but I can't find my queens. I have looked and looked for them, and only once have I had a glimpse of one. I don't ask your opinion about that statement, because I can imagine it would not be very complimentary. However, it may be modified somewhat when I add that I am very near-sighted. I have lately worn glasses when about the bees; but even with them, as my husband would say, "I fail to find" the queen. The gentleman above mentioned won't say "can't;" but when he says he "fails to find" any thing, our daughter understands that it is time for her to try.

MRS. M. E. BROWN.

Athens, Clarke Co., Ga., Dec. 21, 1887.

My good friend, I think our little book, "Merrybanks and his Neighbor," would prove interesting to you just now. Friend M. had just such troubles in finding the queens when he first started. You just want to put a gummed label on her back. That is the way friend M. decided to do.

A HARD WINTER FOR BEES.

We have had a very hard winter for bees. They had a good fly on the 4th of Jan.; on the 5th it began to rain, and has continued to rain up to to-day, Jan. 6, at 6 o'clock. It is a very cold rain. I can not say what may be the result of so much wet weather. My experience is, that it is the worst of all for bees on summer stands; but I hope to come through in tolerably good shape. During the last year here, up to about the first of July we had very wet weather; but I have seen as wet weather before, and a good honey season from July 1st till about the middle of September. I will give you my views about it, but I do not know that it is worth the paper it is written upon. About seven years ago in June, and in the midst of a fine honey-flow of white clover, we had what is called a cyclone. It did a great deal of damage. The next day the bees stayed at home, and for six weeks I did not see a bee at work on any kind of flower. Now, I have what I believe you call matrimony-vine growing at my door; and when the bees are at work on any flowers they are at work on these, and very often when they work on nothing else. Well, we have had a good many storms this year like the one above. They call them electric storms around here; and I believe, though I can't tell how, that electricity has had a great deal to do with it, about here at least. THOS. CHAPMAN.

Rocheporte, Mo., Jan. 6, 1888.

WIRE-SCREENING A PORTICO TO KEEP OUT MICE, ETC.

I am a beginner in bee-keeping, and write you for a little advice. My hives are the portico hives, and in putting them in the cellar this fall I nailed a wire screen over the front of the portico to keep mice out, and to prevent the bees from coming out. Is this a good plan? My bees are much more uneasy than they were last fall, when they had nothing over the front of the hives. EDGAR A. DODGE.

Glencoe, Dodge Co., Nebraska.

Friend D., the only trouble with putting screens over the front of the hive for cellar wintering is the one you mention—that it annoys the bees, and causes them to worry themselves. I practiced it one or two winters, without any particularly bad results; and one thing about it pleased me very much indeed—there were no dead bees scattered about on the floor, to be stepped on when you went in in the dark. You should keep the mice out by having the entrance only ⅜ inch wide.

WHAT I DO WITH UNFILLED SECTIONS.

It seems to trouble a great many bee-keepers to have so many unfinished sections at the close of the honey season. Now, these unfinished sections I look upon as so many blessings, and I should like to have ten thousand of them on hand the coming spring. I do not want them to go back on the hive for comb honey, but I will tell the readers of GLEANINGS how I dispose of them. In the fall, after the honey season is over, I place them in wide frames and extract the honey, and put them out of the way of the mice. I always use full sheets of worker fdn. in the section boxes. In the spring, when the weather gets warm, or just before swarming time, I take a case-knife and run it around the inside of the section, cutting the comb nice and square. Now, these combs I fit nicely in my brood-frames, and fasten them with transferring-strips or a piece of hard-twisted twine. I always raise my own queens; and when one begins to lay I give her a couple of frames of brood that is just gnawing through, and fill the hive full of these filled frames; or if I do not want to use them this way I hang them in supers for extracted honey. In a short time I have worker-combs which are as nice and straight as any one could wish to see. These combs do not cost me as much as full sheets of worker fdn., and are just as nice and good. Let bee-keepers like myself, who have more time than cash, try my plan and see if they are not well paid for their trouble; for I think it does not pay a bee-keeper, who buys all his fdn., to melt up a piece of comb that is four or more inches square. W. H. H. STEWART.

Galt, Ill.

Friend S., we used to do the same thing years ago; in fact, we used to save every bit of comb two inches square, and patch them up to make combs for extracting. Of late years, however, I believe that most bee-keepers prefer to stand the expense of a sheet of foundation rather than fuss with bits of comb, and have patched-up combs, even then. Quite a number, and friend Doolittle among them, declare that a sheet of thin foundation *does not* give honey quicker or nicer than sections partly filled with comb of the previous year. The matter will be well tested during the coming season.

SHALL WE SUPPORT A MINISTER WHO USES TOBACCO?

You and I exactly agree with reference to tobacco, for I so despise the use of it. It is with the greatest reluctance that I contribute to support a preacher who uses it. It is impossible for me to give him any thing cheerfully. Am I doing wrong to give unless I can give cheerfully? I don't think that the people do you justice, for they charge you a great deal of your time, and means too, for doing right. They ought to do right for nothing. They are at liberty to charge you for nothing but their labor, and not for doing right.

L J. BLANKENSHIP.

Corsicana, Mo., Dec. 31, 1887.

Friend B., if you want my opinion in the matter, I should say, by all means contribute to the support of the minister, just as freely as you would if he did not use tobacco. Show respect for the office he occupies, at all events; but in the meantime labor with him the best you know how, and ask other good people to present the matter to him likewise. Very likely he knows he ought to give up its use, and perhaps a few words of exhortation from his people, together with their prayers, would induce him to shake off the shackles. No one likes to be driven, especially in regard to matters of conscience.

BEE-MOTH; THE OLD STORY OF KEEPING IT OUT.

A friend tells me his method of keeping out the bee-moth is to bore a half-inch hole three or more inches from the bottom of the hive, then insert a piece of elder that will project about six inches. The bees will find their way in and out, but he says the moth can not find the passage. Is there any thing in it? S. H. HASKELL.

Portersville, Cal., Sept. 27, 1887.

Friend H., the above is all an exploded humbug. The bee-moth can go anywhere the bees do, if it wants to; but we have pretty good evidence that it has other plans for getting eggs into the combs than crawling into the hives. A great many times the eggs are laid when there are no bees on the combs; and it has been suggested that bees sometimes carry eggs in on their legs. They get dropped into the combs. Of late, however, little attention has been paid to this matter; for a progressive bee-keeper, up with the times, has no trouble or anxiety about the moth whatever. A very little sprinkling of Italian blood banishes them so nearly that most of us have lost all interest in the subject.

UNFAVORABLE TO THE SIMPSON PLANT.

I have read all or nearly all that has been said in favor of the Simpson honey-plant, and it does not please me. I got 10 plants of it from a bee-keeper, and they grew 9 or 10 feet high, and there were plenty of hornets, yellow-jackets, and flies on them, but I saw only 6 bees on them the whole season. When I rubbed out the heads in the fall I saved a good deal of seed. While doing so a good deal was scattered on bare ground in my garden, and in the spring it came up very thick. I had a fine large Simpson plant growing beside a large burdock bush, and both were in bloom at the same time. I should think there might have been as many as 30 bees on the flowers of the dock, but there was not one on the Simpson. Bees get both honey and pollen from burdock, although I don't approve of it as a plant to cultivate.

THE RANGE OF FLIGHT OF BEES.

I have read of bees flying great distances for honey. I was so situated that I went a mile along a road from my house, frequently, and the nearer I approached home (where the bees were) the more numerous they were on the dandelions and white clover.

MICE IN COMBS OF A HIVE.

I examined some hives last night in the cellar. In one hive, mice had got in, and there was about half a pint of comb that they had cut to crumbs at one corner of the bottom-board. I have found mice-nests before now in my hives.

JOHN DAWSON.

East Dayton, Tuscola Co., Mich., Jan. 26, 1888.

Friend D., the reason you did not find the bees on the Simpson honey-plant was because they had not *learned* to work on it. A year or two ago one of the friends reported he had quite a large patch of the Simpson honey-plant, and there would not a bee touch it—only wasps and yellow-jackets. Soon after, the basswood failed, and a solitary bee, during a single afternoon, found there was honey in the cups of the Simpson plant. In an hour more, there were more bees on that patch of Simpson plant than our friend ever saw before on so small an area. If I understand it you had only ten plants, and one more standing by the burdock. A little larger area, at a time when the bees are not getting plenty of honey from some other source, and you will see bees on it to your heart's content. Please do not understand me, however, to claim that it will pay to cultivate the plant for the honey alone. I do not think it will, nor any other plant.—You must not have the entrance to your hives wide enough to let the mice in.

WINTERED IN CELLAR.

All the bees are wintered, up in this cool northwest, in cellars or in caves. Mine are in the cellar also, and are taking it quiet. I have not given them any more air than they get from where they go in the hive. D. R. HOYT.

Princeton, Minn., Dec. 26, 1887.

TOMATOES AT 21 CTS. A BUSHEL.

On page 49 of GLEANINGS for Jan. 15 you seem to be very much surprised to learn that tomatoes sold for 30 cts. per bushel. There is a large canning-factory here, which obtained all the tomatoes it cared for at $7.00 per ton, which is at the rate of 21 cts. per bushel, delivered, and I believe it was thought to be a paying crop at the above price, and they were surely fine tomatoes.

C. C. MILLER, JR.

Marengo, McHenry Co., Ill., Jan. 20, 1888.

Many thanks, my young friend, for the facts you furnish. If this be true, then we have the *greater* reason to congratulate ourselves on having a locality where real nice tomatoes will bring two dollars a bushel. It was not only right around Medina, however, that tomatoes commanded so high a price last year, for the Cleveland quotations were not less than a dollar at wholesale for really first-class tomatoes at any time. I think, however, the large price we received was owing a good deal to those very large Mikado tomatoes. Our experience is, that tomatoes that weigh toward a pound apiece will bring much better prices than those weighing only a quarter or half a pound; and this is another argument in favor of the Mikado, even though our Ohio Experiment Farm did pronounce them only second class.

ASTER HONEY CANDYING TOO QUICK TO BE SUITABLE FOR WINTERING.

I hope you will give a word of caution to the friends who are trying to winter their bees on aster honey. I get on an average more surplus from aster than from any other plant; but I leave as little as possible of it for winter. It will granulate without any provocation, and the bees may starve to death. If extracted it will commence to turn white in a week; and if sealed up in the comb, a month or six weeks is long enough to make it all solid, except where the cluster covers it, when it may take a little longer.

B. C. WHITNEY.

Rahway, N. J., Dec. 20, 1887.

ARTIFICIAL PASTURAGE, AND HOW IT PAID ONE BEE-KEEPER.

I got one peck of Japanese and two bushels of silverhull buckwheat. On account of dry weather I did not sow until the 25th of July, which was too late in this part. Just when it was in full bloom the bees boomed on it. The hot winds of one day just about used it up. Still I had from the one peck 6 full bushels of nice Japanese, and only 10 bushels from the 2 bushels of silverhull, although 2 acres of the silverhull I did not cut. However, I am very much in favor of the Japanese for this country, on account of dry weather. I shall sow largely of it next season, and some silverhull also. My bees (17 stands) up to August, or till they got the buckwheat, were barely living—so much so that they did not swarm much. I had only 4 or 5 swarms during the season. Well, they just filled those lower stories full from the buckwheat, so I went through them this fall and took from them two side frames each for my own use; that is, from the heaviest of them, leaving them still plenty to winter on.

HOG-RAISING VERSUS BEE-KEEPING; THE LATTER MORE PROFITABLE BY 2 TO 1.

Next spring I shall, or intend to, sow an acre or two in each month for the benefit of my bees. I invested in the outstart about $100 in thoroughbred Berkshires. Now, taking into account the corn and the expense it is to raise hogs, I believe I can invest the same amount in bees, and, with the same trouble and expense, make the bees discount the hogs two to one. I am beginning to feel, with brother Miller, after we have labored hard to build up a honey-farm we ought to have a certain amount of exclusive territory. Perhaps I'm selfish.

Quenemo, Kan. J. H. KENNEDY.

CAN TWO CROPS OF BUCKWHEAT BE SECURED THE SAME SEASON FROM THE SAME GROUND?

If the Japanese buckwheat be sown as early as it can be on account of the frost, can it be gathered in time to sow for the fall crop, or can two crops be raised on the same ground the same year?

FERTILE WORKERS.

Can there be more than one fertile worker in the hive at the same time? I will give my experience after this is answered. If it is worthy, please answer through GLEANINGS.

S. C. FREDERICK.

Arcadia, Kas.

I think, friend F., some one has already reported getting two crops of buckwheat in one season; that is, it was done on a small scale. The great trouble is, the first will not fill out and produce grain unless it is sown very early, so as to avoid the extreme heat of the summer while the grain is filling out.—Whenever there is one fertile worker there are almost always several more.

FREQUENT DISTURBING OF BEES NOT NECESSARILY FATAL.

About 14 years ago I put a swarm of bees in a dark closet, not plastered. They had no stores to amount to any thing. I put some dry comb on top of the frames. I made it a practice to take a teacup, about half full of melted light-brown sugar, and drizzle it into the comb every evening. I set my lamp down close by the hive, took off the cover, poured on the feed, and it was fun to see them rush up and eat—not a bee flew to the light, nor at me. They would act like a lot of little pigs. They wintered well.

J. B. WHITON.

Ithaca, Mich., Jan. 19, 1888.

Friend W., I have known bees fed daily all winter, just the way you mention, without any bad results at all; that is, it was done successfully with a single colony; but I have, however, known a good many to try the same experiment of feeding quite a number of colonies while in the cellar, and a general demoralization was the result.

QUEEN-CELL BUILDING WHEN NOT EXPECTED.

I purchased an albino queen last June. As soon as her bees began to hatch they began to build queen-cells. I cut out from one to three a week, until I cut out forty, and one hatched in the hive. I introduced the virgin to another colony. I finally sold the old queen to a neighbor, after raising all the queens I wanted from the cells thus built. Now, what do you suppose was the reason of their acting so? The queen was the best laying queen in my yard, and I have some of the finest queens and bees from her I ever saw—four and five banded.

Valley, Lewis Co., Ky. JAMES M. DENHAM.

Why, friend D., that queen of yours was worth a small fortune. In our back numbers, such cases have been mentioned. You had better buy her back again if you can get her. You see, she will raise queen-cells right along, and at the same time keep her colony populous; and these queens will stand a very good chance of perpetuating this same valuable trait. The matter has been written about several times, but I have never heard of anybody succeeding in perpetuating a strain of queens possessing this peculiarity. If she was the best laying queen in your yard, this is an additional reason why you should have set a high value upon her. Now, please notice carefully and see if some of her queens do not do this very same thing. I believe I would give more to-day for such a queen as you describe than I paid for that half-pound of Grand Rapids lettuce-seed.

REPORTS ENCOURAGING.

200 LBS. TO THE COLONY.

OUR bees have done well this fall. There are stands in my home apiary that have made 200 lbs. of honey. We had two years of drought in Texas before last fall set in, and I never was so surprised to find them doing so well. I will give you a report when I get through.

E. CRUDGINGTON.

Breckenridge, Tex., Dec. 7, 1887.

POLLEN IN JANUARY.

The Tar-Heel bees are bringing in pollen plentifully to-day from the tag-alder, and one of your thermometers registers 86° in the house, in a room where no fire has been since morning. It is now 2.30 P. M. How's that for January?

ABBOTT L. SWINSON.

Goldsboro, N. C., Jan. 7, 1888.

$1.00 PER HIVE, BESIDES HONEY FOR TABLE, AND WINTER STORES FOR BEES.

Bees gave (besides honey for the table) about $1.00 per hive, surplus honey sold, with enough for winter. We feel thankful, in view of so many who fared worse. About a third of our colonies swarmed and were returned, as we did not want increase.

E. H. MCCLYMONDS.

Templeton, Pa., Dec. 27, 1887.

$230 FROM BEES IN 1886, AND ONLY 80 CTS. FROM THEM THIS YEAR.

My bees will surely bring me something next year. I have 40 hives in good shape for winter, and doing well so far. Last year I got $230 from my apiary; this year I sold 80 cts. worth of honey.

W. H. RITTER.

North Springfield, Mo., Dec. 26, 1887.

100 LBS. PER COLONY.

I think my report of bee culture will have to go into Reports Encouraging. I have wintered in the cellar for three winters, as the snow drifts so hard here that we can not keep them on summer stands. I set out 4 colonies last spring, all strong. I increased to 12 by both natural and artificial swarms, and took 150 lbs. of extracted and 250 lbs. of comb honey, making 100 lbs. per colony.

All of my supplies came from your house, and have given general satisfaction. The queens and pounds of bees ordered from you have done well.

J. ROUSE.

Camden, Lyon Co., Minn., Dec. 31, 1887.

NOT A CANDIDATE FOR BLASTED HOPES.

I had good success in moving 48 colonies eighteen miles on wagons. Only one comb broken down from the whole lot. But they are in bad shape for winter. If I bring ten through the winter I shall do well. But I am not going into Blasted Hopes. Oh, no! I am a clear grit. If they all die I will buy again.

D. N. CUMMER.

Florence, Ont., Can., Dec. 28, 1887.

1450 LBS. OF HONEY FROM 20 COLONIES.

In Dec., 1886, I shipped 22 colonies from Alabama to Texas, and lost two in transit. One more did no good. I had seven swarms. They all ran away. This was in June. The first of July the honey-harvest commenced, and lasted six weeks, in which time I took 1450 lbs. of honey; 200 lbs. of this was comb honey.

T. J. GROSS.

Unitia, Tex., Dec. 24, 1887.

HAS SOLD 25,000 LBS. OF HONEY.

I am a bee-keeper, not the poorest and not the best. I have 60 colonies now, which is the increase of 22 which I had in the spring. I have sold 25,000 lbs., and have some on hand yet. I intend to make bee-keeping my business, if I succeed in wintering my bees.

M. J. KISTLER.

Collingwood, Ind., Jan. 9, 1888.

I presume, friend K., you mean that the 25,000 lbs. of honey is the total amount you have secured while you have been keeping bees, for you surely did not get it from the 22 colonies which you say you had in the spring; or perhaps you buy and sell honey as we do.

ONE-HALF BARREL OF HONEY FROM 22 COLONIES, AND INCREASED TO 40.

The year 1887 has passed, and one more year we must put down as our "bad year." I started with 22 hives, spring count. Here is what I made: Half a barrel of rather good honey; 24 one-pound sections, and increased to 40. The year opened up with the very best of prospects. Spring came a month earlier than usual, and every thing looked bright and cheerful for Louisiana, and I must add here that every thing turned out well except honey.

C. K. SCHWING.

Plaquemine, La.

4000 LBS. OF HONEY FROM 98 COLONIES.

The past winter and summer has not been a very good year here for bees and honey—only about half a crop, and a loss of one-half to three-fourths of the bees, with some a loss of all their bees. I started in last winter with 100 colonies. I lost but two *colonies* in the chaff hive through the winter, and they were each second swarms, and should have been doubled up; but as they made me just the one hundredth colony, I would not double them up; so I lost them. If I had doubled them up, probably I should have wintered without a loss of a single colony. I have to-day 119 colonies, and took 3300 lbs. of comb and 700 lbs. of extracted honey. I got no surplus from young swarms. My honey is all sold but about 250 lbs. of extracted. I had one of the largest bee-keepers to see me a short time ago. He and his sons had 500 colonies last winter, and lost, by spring, 200. Another neighbor lost 80 colonies. I feel proud of my apiary, and can truly say it is the nicest and best lot of hives in our county, and so say every one who sees them.

Honesdale, Pa., Jan. 3, 1888. F. BRITENBAKER.

FROM 11 TO 24, AND 300 LBS. OF HONEY.

I started in the spring with 11 colonies—8 strong and 3 weak. I increased to 28 and took 200 lbs. of extracted and nearly 100 lbs. in the 1-lb. section. My bees are all Italians but one. I Italianized them this summer, without losing a queen. I use the Peet cage. I have never seen its equal, to my notion. I have never lost a colony in wintering yet.

EDGAR A. BRIGGS.

Manchester, N. Y., Jan. 5, 1888.

4000 LBS. OF HONEY FROM 65 COLONIES, SPRING COUNT.

Like most other localities, it was too dry here the past season for honey; but as I have done better than they have on either side of me, I can't complain. I commenced the season with about 65 colonies, and obtained 4000 lbs. of honey, mostly extracted, while I see, down the river about Kansas City, they report no surplus, and up the river, in Iowa, they have very little if any surplus honey; so it seems that this is a good honey location. I live at the foot of the bluffs. I have the hills on the northeast of me, and the valley on the southwest. The river here runs northwest to southeast. The honey, all except a little linden, was gathered from the valley, as it was too dry for any thing on the hills. My crop is about all sold, mostly in Kansas and Nebraska, which latter is but a few miles distant.

L. G. PURVIS.

Forest City, Mo., Jan. 10, 1888.

REPORTS DISCOURAGING.

HOPES BLASTED BY FOUL BROOD.

MY hopes were all blasted by foul brood, and my investment in bees proved to be a poor one and a perfect failure. The bees gave me a great amount of pleasure while I had them; and now the only way I have of getting even again is by renewing my subscription for GLEANINGS, that I may have the pleasure of reading it and gaining information, and be profited by the experience of others in bee culture.

J. W. WHITE.

San Antonio, Bexar Co., Tex., Jan. 5, 1888.

ONLY 100 LBS. OF HONEY FROM 31 COLONIES.

This has been a very poor honey season here. I got only about 100 pounds of honey from 31 colonies, spring count, and two swarms. But my bees gathered plenty from aster and goldenrod to winter on.

JAMES M. DENHAM.

Valley, Lewis Co., Ky.

MOVING BEES TO FIELDS OF ALSIKE.

While my bees did poorly the last season, I got enough honey (by moving 22 colonies some 5 or 6 miles to a field of alsike clover) to do fairly well. At our State and county fairs I took a large plurality of the premiums offered at both fairs for displays of honey, bees, supplies, etc. I put 60 colonies in the cellar, in fair condition, and packed 5 on their summer stands, with 23 without any extra protection.

ELIAS COLE.

Ashley, Delaware Co., Ohio, Dec. 30, 1887.

Friend C., will you tell us the quality of that alsike honey? Was it as liable to candy as the common white-clover honey?

HALF THE BEES HAVE STARVED ALREADY.

We have had the poorest season for honey in this part of the State since I came here from Knox Co., O., 17 years ago. About half of the bees have starved already, and I think the first of April will find very few bees alive that have not been fed. Feeding is so seldom required here that it makes people very careless about it; this is the first season since I have lived here that a good strong colony has failed to gather sufficient stores for winter. While we do not get as large yields as some sections we are pretty sure to get some surplus every year without feeding. I had a small crop this season. I have read the reports from the different sections of our country for several years; and I think we have as good a country for bees as can be found. We have comparatively little trouble in wintering. I have never lost a stock. We winter out of doors, and bees fly every month in the year. We have a good fruit country, and society is as good here as in Ohio.

S. S. JOHNSON.

Hudson, Mo., Jan. 2, 1888.

NOTES AND QUERIES.

DOES IT PAY TO FURNISH EXTRA QUEENS JUST BEFORE SWARMING TIME?

SINCE it requires 26 days to get a laying queen from the egg, will it pay bee-keepers at the North, *in bees*, to get queens from the South, provided they can get them promptly 16 days before their bees are ready to swarm?

Woodville, Wis. W. W. FULLER.

[As a rule I think, friend F., you would get a larger crop of honey, and certainly more increase, by purchasing queens as you suggest. But there is no particular need of sending south for them, that I know of, in order to have them ready at the time you mention. Another question comes in here: Does the bee-keeper wish to increase the number of his colonies?]

JAPANESE BUCKWHEAT.

My report on the Japanese buckwheat is, 25 lbs. from one sown June 25. The season was so dry that I did not think it would make any thing. I lost probably one-fourth of the seed on the ground. The honey crop this season was only about one-third of an average flow.

WM. S. SPAULDING.

Montpelier, Ind., Dec. 17, 1887.

OLD NEWSPAPERS VS. CHAFF.

Wouldn't 3 inches of newspapers (packed in layers) answer the purpose as well as 3 inches of chaff, in packing bees for winter? How would a dry warm root-cellar, under a granary, answer for a bee-repository?

W. M. BARNUM.

Angelica, N. Y.

[Newspapers will oftentimes do tolerably well, but they do not permit the bees to dry out as chaff does.]

PEAVINE CLOVER ON SANDY SOIL.

Do you know whether the peavine clover will thrive on a light sandy soil? Do you know of any grass or clover that will thrive on such a soil?

J. B. KIBBLE.

Manchester, Ocean Co., N. J., Dec. 15, 1887.

[We have never had much experience with peavine clover on sandy soil, but know that it grows with great vigor anywhere any other clover will grow. Will some of the friends who have had experience please enlighten us?]

SEVENTEEN BUSHELS OF JAPANESE BUCKWHEAT FROM ONE PECK OF SEED.

Although grown under the most unfavorable circumstances, I thrashed 17 bushels of nice seed from the one peck of Japanese seed I purchased from you. It beat the silverhull and the common buckwheat a good deal, for I sowed two bushels of each, and thrashed only 13 bushels of both—that is, 7 of silverhull and 6 of the common. I shall sow the Japanese exclusively hereafter. It is the nicest buckwheat I ever saw. A. J. SHEPARD.

Walker, Linn Co., Iowa.

HONEY EVAPORATED ON THE WING.

I think I have quite good evidence that bees have the capacity to separate or evaporate, in a large degree, the nectar while gathering it and returning to their hives. P. L. NORTON.

Lanesboro, Pa., Dec. 20, 1887.

[The idea, that a good deal of the watery portion of the honey is expelled while the bee is on the wing, is mentioned in the A B C book, under the head of "Water for Bees."

BEES ATTACKING BLACK AND NOT WHITE KID GLOVES.

About two years ago I was hiving a swarm and had on my hands a pair of black kid gloves. While hiving the swarm I was attacked most furiously, so I went into the house and put on a white pair. I came out, and was not attacked at all. My idea is, that the gloss of black objects is what attracts their attention more than any thing else.

FRANZ ZSCHOEMITZSCH.

Monticello, N. Y., Dec. 28, 1887.

BEES SHOWING PREFERENCE FOR COLOR; THEY STING A BLACK CHICKEN.

I see on page 932, you want more proof that bees are more apt to sting dark than light colors. One of my hens was passing through my apiary with a large brood of chicks. All but one were light colored. One was black. The bees attacked the black chicken and stung it to death before I could rescue it. The hen and other chickens were not touched. GEO. A. WRIGHT.

Glenwood, Pa., Dec. 20, 1887.

CIDER-MILLS AND BEES.

What damage will an open cider-mill do to an open apiary, within one mile distance? How can such damage be prevented or cured, if said mill can not be made bee-proof? J. JOHANSEN.

Port Clinton, O.

[Friend J., where the bees have flowers to work on that secrete honey while cider-making is going on, very often they will pay no attention to it whatever. During a drought, or dearth of pasturage, however, you may have a great deal of trouble, and I do not know any remedy but to take your bees away unless the mill can be made bee-proof with wire cloth.]

CAN BEES BE KEPT PROFITABLY WITHIN SIX OR EIGHT RODS OF A RAILWAY TRACK?

Where 80 to 100 colonies of bees are wintered on summer stands, within 6 to 8 rods of railroad track, would said bees be disturbed during cold winter weather by the jarring of about 12 heavily laden trains running over the track daily?

Pittsford, Mich. G. H. DENMAN.

[Friend D., I believe the reports that have been sent in indicate that, if other things are favorable, even such proximity to a railroad disturbs the bees but little. They get used to the noise and jar, and don't seem to mind it.]

OUR QUESTION-BOX,

With Replies from our best Authorities on Bees.

All queries sent in for this department should be briefly stated, and free from any possible ambiguity. The question or questions should be written upon a separate slip of paper, and marked, "For Our Question-Box."

QUESTION NO. 31.—*Is it possible to produce extracted honey, equal in body, color, and flavor, to a good article of comb honey?*

Yes. GEO. GRIMM.

Yes. DADANT & SON.

Why not? PAUL L. VIALLON.

Most certainly. W. Z. HUTCHINSON.

My experience says it is. G. M. DOOLITTLE.

I think so—very decidedly too.
O. O. POPPLETON.

It is possible but not practicable in a large apiary.
MRS. L. HARRISON.

It is not only possible, but a fact, that extracted honey is produced fully equal in body, color, and flavor, to the best of comb honey.
CHAS. F. MUTH.

Certainly; for extracted honey is nothing more nor less than comb honey with the comb taken out.
DR. A. B. MASON.

I think it is. The honey is the same. The comb as a dilutent makes the comb the more palatable. We eat extracted honey too fast, and so soon tire of it. A. J. COOK.

Recipe.—Let the honey stay on the hive till the close of the season, and it is comb honey. Then extract it, and it won't fly out of the body nor off its color in the extractor. In the heavy localities, I suppose this plan is not very readily worked.
E. E. HASTY.

Yes, sir, 'ee. That is just the kind of extracted honey I use and ship to my customers. I know that the usual extracted honey found on our markets is quite below the standard of ordinary comb honey, but this should not be so. Any of my customers who have tasted my extracted honey will vouch for the above statements, as will the editor of this journal.
JAMES HEDDON.

Yes. First-class extracted is superior in body and flavor to most comb honey sold, and equal to any. After it has been kept some time it deteriorates somewhat in flavor. This amounts to little, if kept in tin vessels. The color should be equal on the start, and with proper care will remain so.
JAMES A. GREEN.

Yes. If I leave my honey in the comb a month, for instance, it is comb honey, either good or bad. Ten minutes later I may have it extracted, and it still has all those qualities the same as before; but I believe that, as a rule, it is not as good, from the fact that large quantities of it are extracted in an unripe condition. R. WILKIN.

It is hardly fair to ask me such a question, when I am almost exclusively a comb-honey raiser; but if I must answer, I will say that, when I want a real good meal of honey myself, I prefer extracted; and at the risk of being accused of heresy, I believe it possible to produce extracted as good in every respect as that freshly taken from the comb.
C. C. MILLER.

I think it is. Extract your good article of comb honey, and have you not got honey in body, color, and flavor, equal to the comb honey from which it was taken? If honey is capped before it is extracted, it must be equal to the comb honey before it was extracted. But what is possible and what is most profitable are two things. If we leave our honey in the combs for it to be all capped over, our crop would be small. Extract when the honey is thick; if not capped it is good enough. We should all be glad to get that this year. E. FRANCE.

QUESTION NO. 32.—*Is it advisable to change the name of extracted honey? Is it possible if desirable?*

No. GEO. GRIMM.

No. Hardly. R. WILKIN.

No, to both questions. G. M. DOOLITTLE.

No. No. The Germans call it free honey. MRS. L. HARRISON.

Neither advisable nor possible. W. Z. HUTCHINSON.

I do not think it is desirable. It would be possible, if it were desirable. JAMES HEDDON.

Yes, if it is possible to find a better name; which I doubt our ever doing. O. O. POPPLETON.

I do not think it advisable. Although possible in the course of time, it would be, I think, very difficult. C. C. MILLER.

I don't think we can better the name of extracted. Possibly it could be done, but it would take a long time. E. FRANCE.

No. I see very little need of it, and I think it scarcely possible. There would be some serious disadvantages in the change. JAMES A. GREEN.

1. Not unless a better one is given. It might be called "crystal" honey as the Canadian "managing committee" term it. 2. Yes. DR. A. B. MASON.

Neither desirable nor practicable. We must educate the people to distinguish it from strained honey, and this is being done from day to day. DADANT & SON.

I see no possible reason for so doing. The name is excellent, and we should aim to make it universal in its use. I think it would be difficult, even if the name were undesirable. A. J. COOK.

The mania for changing established names in apiculture is very despisable. The change would be possible, if enough of us were afflicted with the mania; but I think that is not the case. E. E. HASTY.

It is not advisable, as people are getting pretty well acquainted with the present name, which has been used for the last 25 years or more, and a change would create confusion, which will probably take 25 more years to establish, at which time some one will probably come and stir up the advisability of another change. PAUL L. VIALLON.

Many ridiculous improvements have been attempted to better the name of "extracted" honey. If a change for the better were possible, I can not see the desirability, as the honey is, indeed, extracted from the comb. If it could be extracted from something else than the comb, then I should be in favor of adding the word "comb" in some shape. CHAS. F. MUTH.

QUESTION NO. 33.—*If extracted honey will bring two-thirds the price of comb honey, which would be the more profitable to produce, comb or extracted? How much more do you estimate it costs to raise comb honey than extracted?*

1. Both. 2. One-third more. G. M. DOOLITTLE.

1. Extracted. 2. Nearly double. R. WILKIN.

1. Extracted. 2. Fully twice as much. DADANT & SON.

I think there would be but little choice. W. Z. HUTCHINSON.

Other things being equal, extracted. Two-thirds more. JAMES A. GREEN.

Extracted, provided you make a home market for it. One-third more. MRS. L. HARRISON.

Comb honey, as with our present system it doesn't cost one-third more to produce comb honey. PAUL L. VIALLON.

Much would depend upon the bee-keeper and his situation; with me it would be about an even thing. JAMES HEDDON.

With me, and in my market, it is the most profitable to produce extracted honey. I am not posted as to the cost of raising comb honey. DR. A. B. MASON.

Extracted, to the first question; the answer to the last will depend much on locality and the bee-keeper; but my experience would lead me to say double. O. O. POPPLETON.

We can not get half as much comb honey as we can of extracted, and we would rather run a yard for extracted, as far as work is concerned, so I would say extracted, at two-thirds the price of comb, is more profitable. E. FRANCE.

If I am right, comb honey would be the more profitable in rather lean localities, and extracted honey in very productive localities. In my own apiary, I should say it costs about two cents a pound more to produce honey in sections. E. E. HASTY.

For the average bee-keeper, extracted, decidedly. I think it costs the average bee-keeper twice as much to produce comb honey as it does extracted. The expert may produce comb nearly as cheaply as extracted, but this takes long experience and much skill. A. J. COOK.

Comb honey. Considering all, cost is about even. In considering cost we must not leave from view the condition of the colonies for winter. I answer this question entirely form the standpoint of a Wisconsin winter, and have no reference to milder climates. GEO. GRIMM.

I think this whole matter of comb versus extracted, varies so much with the place and the man, that every man is a law unto himself. To your first question I should say, extracted. I have done so little at extracting of late years that I can give no estimate of any value. C. C. MILLER.

It will be more profitable to produce extracted honey. The exact amount, how much more it costs to produce comb honey, is of a speculative nature, and depends on the energy and ability of the bee-keeper, and on what his time is worth. If his time is worth nothing, it costs him nothing more. He gets paid for his sections and fdn., and his shipping-cases may balance his barrels. CHAS. F. MUTH.

MYSELF AND MY NEIGHBORS.

What shall it profit a man, if he shall gain the whole world, and lose his own soul?—MARK 8:36.

OUR "YORK STATE" NEIGHBORS.

AT the appointed time, January 17, at 2 P. M., I was on hand ready for the York State bee-keepers' convention; and, in fact, I was the *only* one on hand. Although I came all the way from Ohio to this convention, there was not a York State man present in the convention rooms at the opening hour. I should not have been thus early, perhaps, had it not been announced that friend Doolittle would open the discussion in regard to using full sheets of foundation in the brood-chamber. As it happened, however, he was not present at all, neither did he send in a communication. Neither was C. C. Miller present, nor H. D. Cutting; and although the programme announced that Capt. Hetherington would lead the discussion in regard to organizing an international bee-keepers' association, *he* was not present, neither did he send in any communication. In the same way, we did not meet Julius Huffman, L. C. Root, R. F. Holterman, nor C. R. Isham. In fact, of the eleven different prominent bee-keepers who were announced on the programme, only two were present. Shall we complain of the York State bee-keepers that they are lacking in enthusiasm or a sense of duty? God forbid. Very likely it is a Christian duty to do a certain amount of complaining, and remonstrate occasionally as one goes through the path of duty; but I think, dear friends, the great trouble is, we shall complain *too much* instead of not enough. I do not know just why these friends were all absent, nor do I know why the number in attendance this winter at Utica should have been so much less than those who attended a year ago. In many localities the drought and short crops have made bee-men feel poor; but York State, during the past season, has been blessed in honey-crops far above her sister States. Doubtless many of the friends were kept away by sickness or important duties; but I fear the greater part of them remained at home because the weather was severely cold, and because of a sort of indifference that is the greatest obstacle in the way of furthering any good work. Some may ask, "Brother Root, are you really sure that it pays in any sense to attend conventions? Is it really worth while to keep them up, especially when we have so many publications devoted to our industry, and so many cheaper ways of giving and receiving knowledge?" To which I reply, "Dear friends, I *do* feel satisfied that it pays to attend conventions, if they are properly conducted." Well, what shall we do to make sure that they *are* properly conducted? "Why, attend them yourself; pay your dollar toward the support of the institution, and then exercise your privilege as an American citizen, of voting for that which is right and good and pure and true. If you decide not to attend, do not, I beg of you, criticise and object, and find fault with those who do attend."

I was very much pleased to find the meeting was to be opened with prayer by one of the resident pastors of the city of Utica. I had an opportunity of having just a few minutes' conversation with him, and it made me feel like praising God to know that such good stanch servants of his are to be found all over our land, in our great cities as well as in our country towns. I very soon learned to love and respect our good president, Mr. W. E. Clark. I have also learned to feel a very warm friendship for the patient, quiet secretary, friend Knickerbocker. As the treasurer was absent, Mr. K. was obliged to act for him part of the time, both as secretary and treasurer.

The first topic was, "Does it pay to cultivate plants specially for honey?" This seemed to be decided almost unanimously in the negative. Better devote your time and land to alsike and mammoth clover, buckwheat, and rape, in localities where the latter flourishes. A Mr. Crocker, who was present, reported about 80 acres in alsike clover during the past season, within range of his bees. This alsike was raised by the farmers about him, specially for a forage crop, without reference to honey at all.

One member of the convention informed us, that at one time when acres of buckwheat in his vicinity were producing no honey at all, he got quite a good yield of buckwheat honey by moving his apiary several miles to another locality where the buckwheat *was* yielding honey. In this case it was the buckwheat on the hills that produced the honey when that in the valleys did not. I remember to have met a similar case in my own experience.

"Does it pay to use full sheets of foundation in the brood-chamber?" was discussed generally; and I believe the result was, that very few had tested the matter sufficiently to be satisfied. Mr. Crocker, mentioned above, had used about 40 of the Heddon hives, and thought he had a little better results in comb honey where he put nothing in the brood-chamber but starters. Of course, the new swarms that were worked on the above plan had little or no stores for winter, as the result of giving so much from sections. When asked if he did not think all the gain made was on account of the lack of stores in the brood-chamber, he said he thought not, and his experience seems to agree with the teachings of Heddon and Hutchinson, that it pays us to get all the white honey in the sections, even if it does result in leaving the bees entirely destitute of stores when the season is over.

No one present had succeeded with artificial fertilization, unless, indeed, the old Kohler method of causing drones and queens to fly a little later in the day than the usual time, be called artificial.

The topic, "How can we organize an international bee-keepers' association that will best promote the interests of bee-keepers?" occupied more time and attention than any other one thing. The trouble seems to be, so many have different ideas in regard to what this organization shall accomplish. Some of the brothers wished to accomplish one thing, and some another; and, all together, the question seems to be rather unwieldy. A few wished to have it worked as a means of giving each member of the association private advices in regard to the honey-market. Others wanted it made general for all, both producer, consumer, and middle-man. The following quotation in regard to it, we clip from the *A. B. J.;* but no one seems to know who the author is:

> The convention of honey-producers in the State of New York will begin at Utica, Tuesday next. Three days will be occupied in the deliberations. J. L. Scofield will preside. The producers of over 5,000,000 pounds of comb honey and 1,000,000 of extracted honey as an annual crop will be present.
>
> Among other subjects to be discussed will be the shape, size, and style of the packages for the coming year, the price to be charged to the wholesale dealers, and a plan for unity of action to prevent the cheapening competition which has marked the sale of honey during the past.
>
> It is proposed to form a trust, to be composed of all the large producers in the State, nominally to regulate the size of combs, so as to unify the marketable packages, but actually to buy up all surplus honey when there is a glut of production, so as to keep up the price and shut out competitors who might be willing to sell at a sacrifice. It is expected that this plan will meet with great opposition from the small producers.

While the above is not exactly true, it outlines the work proposed. The matter of buying up the surplus honey so as to make a corner in the market, I do not remember to have heard suggested. I believe the conclusion was, to organize a honey-producers' union; and to meet the expense of collecting statistics in regard to the honey crop, and forwarding them promptly, an admission fee of one dollar was to be charged; and anybody can be a member of this union by sending a dollar to G. H. Knickerbocker, Pine Plains, N. Y., who will forward circulars, giving full particulars in regard to the matter, if desired. Of course, this union is not to consist entirely of York State bee-keepers, but it is expected to represent the United States, Canada, and any other country where honey is produced, that cares to assist in the matter.

The question-box brought forth a good deal of fun, and, we hope, threw light on many subjects. Friend N. N. Betsinger gave us a most excellent talk in regard to the marketing of comb honey. The special point he brought out was a somewhat novel one to me; but as soon as he mentioned it, I felt sure he was right. It was this: People, the world over, are fond of change. Our forefathers first brought honey to market in pails and tubs. When somebody devised a clean nice box with a pane of glass over one end, it started a boom in honey, because the idea was so unique. Of course, honey in neat clean boxes brought a better price. When father Quinby, however, brought honey to market in a box having glass on *four* sides, so that it was really a little glass show-case, this called forth a new demand, and much better prices still. A little later, friend Betsinger himself, if I am correct, gave us a glass box holding only a single comb. The glasses were held in the opposite sides by tin points. This had its boom, and prices were up at one time as high as 40 cts. a pound, we are told. Your humble servant, at about this stage of proceedings, suggested a box holding only *one pound*, and this created another boom, especially when these one-pound boxes were packed in a case of 24 or 48 pounds. The one-pound section had its boom, and is booming yet, I believe, a little ahead of any thing else, even if some of the York State folks *did* hurl anathemas at your bald-headed servant A. I. Root because he had the audacity to teach the public to demand little sections of only a pound each, when they might have been perfectly satisfied with the two-pound sections, had nothing better been shown them. I here called forth quite a little fun by remarking that I should not wonder if we should be obliged to get out new things a good deal as the women do in their bonnets and manner of doing up their hair. It gives variety to life. There are none of us but tire after a while of having a constant sameness, day after day and month after month. I mentioned that, in our own State of Ohio, the women-folks must have a new way of doing up their hair about once a year. When we men-folks just begin to get reconciled to bangs, and think they are rather pretty after all, then the women start out with a top-knot on top of their head, and so on. Friend Aspinwall, of the *Bee-Keepers' Magazine*, said that, in York State, they change their styles and fashions *once a week*.

The only matter that brought up any thing like unpleasantness during our convention was, that friend Betsinger, at the close of his excellent talk, recommended pretty vehemently a little paper box of his own, with a glass window in it. I presume that no one would have objected to mentioning his own wares in his essay, were it not that the paper box is patented—or, at least, a patent has been granted him on some feature of it. As a means of avoiding similar unpleasant scenes, C. M. Goodspeed suggested that, hereafter, no article should be exhibited to the convention, on which there was a patent. This stirred up a bigger hornet's-nest yet, and he made haste to withdraw his motion.

Now, please do not conclude, dear friends, that our convention was the means of stirring up bad feelings. This matter of the paper boxes was laughed off pleasantly, and, in fact, there was so much pleasant good nature constantly going on, that I forgot myself so far as to get away back into one of my boyhood excesses. I had almost forgotten that I used to get into fits of laughter that were uncontrollable. In fact, I don't know that I have laughed until I cried, for twenty long years, as I did at this convention. When they found out that I was trying hard to be sober and sedate, as becometh an editor, and one who is away from home, they seemed to take pleasure in provoking me to mirth. Finally, when I began to think I had obtained the victory, and was going to be steady the rest of the evening, one of the reporters started me going again. Brother Aspinwall was making quite an elaborate speech; and when he got to the point where he said, with a good deal of emphasis, that a cert in thing would be a bad *precedent*, the reporter suggested, in a loud whisper, that he probably meant "vice-precedent." Now, this is a small matter indeed, and perhaps you think there is not any thing funny about it; but it set me going again until the tears ran down my cheeks, and I fairly suffered. I did not dare to look at that reporter any more during the convention. To add to my troubles, the president here called on me to stand up, open the question-box, and answer the questions.

Well, now, I tell you, dear friends, it is a *good thing* to get to laughing once in a while until you shake all of the bad feelings and muddy waters out of you. There were quite a few present who had before, perhaps, felt a little edgewise toward me about some things in the past, and I am sorry to confess that I felt a good deal the same toward them. But the fun we had that evening washed it all out as effectually as we used to wash the marks from our slates with clean pure snow in winter time, away back in childhood.

At this present moment, God knows that I have nothing but love and good will toward every friend there; and this love and good will, I believe, overflowed a little, and has taken in some who were not there. I hope the memory of that convention will give me grace to be milder in my replies, and kinder in my editorial work in the future. And if it shall transpire that God has given me the faculty for helping to make conventions pleasant and interesting, I shall rejoice in that faculty as a gift from him; and if it shall also transpire that more of these brothers will go to conventions because of the knowledge that I shall be there to help make it pleasant, I will try not to mind the expense; for, as in our text, what shall it profit a man, even though he do get to be well off by staying at home, and attending to business, even though he *gain the whole world*, in fact, if it be true that, by so doing, he holds aloof from his fellow-men, and misses the opportunities of helping others, and, at the same time, helping himself? Yesterday I went up to the dentist's to have my teeth fixed. When done, I asked him if our family was owing him any thing. He said he believed not, and added, "Mr. Root, I know how hard you try to keep things paid up, and to owe no man any thing. Well, I too have been trying, and *trying hard*, to owe nothing to anybody, except good will; and I want to owe all mankind a hearty good will as long as I live."

Owe no man any thing, but to love one another.—ROMANS 13:8.

Now, dear friends, if attending conventions helps us in the line of the above little text, we have almost *no business* staying at home when they are held in our vicinity—that is, when we are reasonably able to afford the expense. Shall we not come to a standstill, and ask the question, "What are we living for?" and finally, "What doth it profit a man?" as in the language of our text. More than one man has discovered, at the close of his life, that riches have little to do, comparatively, with making a man happy; and when we come to die, *millions of money* will not purchase the peace of God.

OUR OWN APIARY.

CONDUCTED BY ERNEST R. ROOT.

SALT; ITS VALUE AS A LUBRICANT IN FACILITATING THE REMOVAL OF WAX SHEETS FROM ROLLS AND DIPPING-BOARDS.

SOON after the receipt of the card from M. M. Baldridge, which we published on page 944, Dec. 15, stating the value of salt in foundation-working, I told the foreman of the wax department to give the thing a most thorough test in more ways than one. This he immediately set about to do. All those who have made foundation are aware that, in order to get the best results, the sheets of wax, before being run into the rolls, should be drawn from shallow tin vats of warm water in order to give the sheets the proper temperature. In times past we have used in said vats only clear water.

Our first experiment with the salt was to add a little of it in the vats of water referred to, in about the proportion of a quart of salt to five gallons of water. The rolls were then thoroughly drenched in briny water—no starch or other lubricant being used. Upon trial the sheets went through the rolls with little if any sticking. It soon became evident that the brine alone was not sufficient. As prescribed in friend Baldridge's letter, we then mixed a little of the brine in the starch paste, in the proportion of 1 of the former to 20 of the latter. In connection therewith the brine water was used in the shallow vats as before. Foundation was then rolled out with little if any trouble from the sticking, and the results were highly satisfactory indeed. There is not only much less trouble in picking the first end of the sheet off the rolls, but a much larger quantity of foundation can be turned out in the same time. Said our Mr. Kimball, on the first day's trial, as I watched the nice sheets peel off the rolls with so little trouble, "See here; we have run off as much foundation so far this forenoon as we did all day yesterday. How is that for salt?" It was then, I think, 11 A. M., and on the day previous no brine had been used. It seemed to me hardly possible that it could do this right along; but the foreman assures me that, since that time, with the salt he has averaged about as well.

SALT FOR THE DIPPING-BOARDS.

Mr. Baldridge also mentioned the ease with which sheets could be removed from the dipping-boards when the latter were soaked with brine water. We have carefully tested the matter, and find it just as friend B. states. We now keep the "sheeters," or dipping-boards, when not in use, soaked continually in brine water. Without the addition of the salt in the water, the boards would roughen and become totally unfit for use.

TO WHOM DOES THE CREDIT BELONG?

Mr. Baldridge, in the card referred to in this article, does not claim to have originated the idea, but says he got it from a friend.

In a card received since, this friend writes, telling how he accidentally made the discovery. It reads as follows :

> *Mr. A. I. Root:*—On page 944, Dec. 15, I see Mr. M. M. Baldridge gives the use of salt brine to prevent sticking to the dipping-boards. In the spring of 1883 my brother and I purchased of you a fdn. machine. Your directions were, to use starch, which we tried; also soap; but stick it would, till we gave it up in disgust. Later on, some sheets of wax fell into a pork-barrel, and we found to our delight that they ran through the mill like a charm. We then used salt thereafter, and we never again had foundation stick. Finding that friend Baldridge had trouble with the sheets sticking, I gave him the secret. Let the people have it. It is worth money to any one having fdn. to make. E. A. MORGAN.
>
> Columbus, Wis., Dec. 28, 1887.

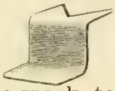
Friend Baldridge, thinking the "secret" was too good to keep from the brethren at large, "let the cat out of the bag."

A CHEAP WAY OF GIVING SALT TO BEES.

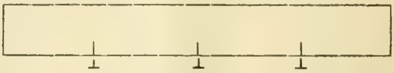
Oh, yes ! The little evaporated particles of salt which will adhere to the foundation will in no way make it less acceptable to the bees ; but if the theory is true, that the bees require salt, then the value of the foundation so made is enhanced.

T-TIN SUPPORTS ; A CONTINUATION OF THE SUBJECT DISCUSSED ON PAGE 22, JAN. 1ST ISSUE.

Since my description of the T super in the January issue of GLEANINGS, in the department of Our Own Apiary, we have had something like a score of suggestions. I have not taken time to reply to each one individually, but I will take space here to answer two or three of the suggestions. It will be remembered, that I was not satisfied with the T-tin rests. I made a remark, something to the effect that we would hail with joy a device which would hold the T tins just as securely, and yet at much less expense. As a partial solution to this problem, I mentioned my experiment in the use of a piece of strong strap iron, bent in the middle at a right angle. This was not feasible, because it would pull out too easily when driven into the bottom edge of the wood. To overcome this difficulty, quite a number of friends have suggested making a T-tin rest of strap iron, cut and bent as in the subjoined engraving. The prongs are intended to be driven through the side near the lower inside edge of the side of the T super, leaving the lower step, so to speak, to support the T tin, flush with the bottom edge of the T super. Three of the little pieces of iron, so bent, are to be driven equally distant on each of the sides. I immediately instructed the foreman of our tinning department to make me several of these, after the above description, of heavy strap iron, light strap iron, and of heavy tin. Samples of this I drove into the T-super sides in the manner I have already described ; but I found that, instead of driving in securely, they had a tendency to split the wood. Moreover, it was only occasionally that I could succeed in driving one squarely into the wood. It would bend and kink up. Even if it were practicable to drive them into the wood, it would necessitate an expensive die to punch them out, and then two folds would require to be bent with a common tinner's folder, to make the steps, as it were. Considered from all points, I think we shall have to discard these also as impracticable and expensive.



Two or three other friends seem to have misapprehended the real purpose of these T-tin rests. One or two say, "Why not make saw-cuts in the T-super sides, and crowd the upright part of the T tin into the saw-cut ?" thus :



The T tins are then to be nailed down. I admit, that this would hold the T tins very securely ; but bear in mind, that they would be *stationary*, and not *movable*, when so fastened. The office of the little pieces of strap iron, as described to you on page 29 was to support the T tins, and yet admit of their easy removal. The reason for not having them stationary is fully discussed on pages 217 and 221, inclusive, of last year.

GLEANINGS IN BEE CULTURE.

Published Semi-Monthly.

A. I. ROOT,
EDITOR AND PUBLISHER,
MEDINA, OHIO.

TERMS: $1.00 PER YEAR, POSTPAID.

For Clubbing Rates, See First Page of Reading Matter.

MEDINA, FEB. 1, 1888.

Whosoever will save his life shall lose it.—MATT. 16: 25.

WE have to-day 7732 subscribers. You see, friends, we are getting nearer the 8000. Perhaps we should say right here, that we are printing 9000 copies of our journal each issue. The rest, over and above our regular list, go out as sample copies. Our advertisers really have the advantage of a circulation of 9000.

LOOK OUT FOR HIM!

WE are obliged to warn our readers to be careful about sending bees, queens, or supplies of any kind to William Connelly, of Ogden, Boone Co., Iowa. He has a way of excusing himself, by saying that the goods were for a cousin of his, by the same name, who has gone away, etc. Investigation, however, shows that no man but himself has for years lived there under the name of William Connelly. We have employed a man to look up the matter.

FRIEND SECOR'S POEM.

I WANT to suggest that the little poem on page 100 seems to be just in harmony with the spirit of that convention, and, in fact, in harmony with the spirit of all the conventions I have attended this winter. Had friend Secor been present at Utica, he would have found just as bright intellects, just as much enthusiasm, and just as much genial good-fellowship. If friend S. *is* a bee-man, I tell you, my friends, he is also a poet of no mean order. Where can you find more expressed in a few short verses than in the above little poem? You should have been at the convention, though, to be able to drink in the music that hums forth from not only every line, but almost every word of that bright little pen-picture.

MATTER FOR GLEANINGS.

I BELIEVE there never was a time when we had so large an amount of really good copy awaiting publication as now. We shall endeavor to give place to all that is worthy of insertion; but to do so, it may take a couple of months. We hope this explanation will be an answer to those who may be wondering why their articles have not appeared in print. In order to hear from all, we shall have to ask the friends to write as briefly as possible. Short articles, amounting to two or three inches of printed matter, are highly acceptable at any time.

THE WESTERN BEE-KEEPER.

DID you ever! Another bee-journal under the above caption has started. This time it is in Des Moines, Iowa. The editor and publisher is our old friend Joseph Nysewander, formerly one of the shorthand writers at the Home of the Honey-Bees, and latterly a supply-dealer at Des Moines. As you will see by the advertising columns, he is still in the supply-business, and in addition has, like some of the rest of us, hitched on a bee-journal. Vol. I. No. 1 of his journal presents a good appearance, and will doubtless fill a niche in the West.

THE AMERICAN BEE JOURNAL IN A NEW DRESS.

THE first numbers of our esteemed cotemporary, the *A. B. J.*, for 1888, have come out in a new dress. It is printed almost wholly from new type, and the matter has been somewhat rearranged. Altogether it is a decided improvement. As in times past, GLEANINGS extends the right hand of fellowship, and wishes the publisher every success. In this connection we note with pleasure the brotherly feeling existing among all our bee-journals at the present time, and likewise the absence of little petty jealousies which, we are sorry to say, used to crop out once in a while.

THE AMERICAN GARDEN.

SINCE our last issue we are informed that the *American Garden* has purchased the *Gardener's Monthly and Horticulturist*, and consolidated it with the *American Garden*. The *Gardener's Monthly* has been an acknowledged authority of its class for 42 years. A short time ago the *American Garden* purchased the *Floral Cabinet*. There is one good thing about these consolidations—one gets nearly every thing that is valuable, and has to go over only one journal instead of three. It has often seemed to me like the economy of uniting two weak swarms of bees—you get one rousing colony. I believe it has not yet become the fashion among bee-journals to double up.

CABBAGES FROM AMSTERDAM.

THAT is where we got them, dear friends; and our boys are having a tiptop trade in them on the streets of Medina, and they are magnificent cabbages—in fact, the hardest heads, I believe, we ever saw in the world. Now, then, is it the skill our Amsterdam brethren have in raising cabbages, or have they got a better kind of seed that makes these solid heavy heads? In the latter case, we want some of the seeds. There is one thing very pleasant to me in regard to this: While these far-away brothers are helping us by supplying us with cabbages, when we are cabbage hungry, we are perhaps also helping them by taking their fine products off their hands. They cost $14.00 a hundred here, but I don't suppose our foreign friends get 14 cts. apiece for them by considerable. I wonder if we have not a subscriber in Holland who could tell just what the cabbages do net them that they send off to America.

OMITTING ADDRESSES.

WE hoped we should not be obliged to say any thing more about this right away; but some of the brethren are getting to be quite bad again. See the following:

> MR. A. I. ROOT:—I wish my name discontinued from your list. I do not wish to take GLEANINGS any longer.
> WILLIAM HAWKINS.

On the opposite side of the postal card, all we can make out of the postmark is "ing." Without the postoffice, we should have to look over 7732 names to find William Hawkins. Had there been any correspondence with him during the year past, we could find him by hunting over letters, and we have already spent considerable time over it, without avail. Now, friend William, if this meets your eye, we hope you will be kind enough to tell us where you live, and I assure you we will stop your copy of GLEANINGS instantly.

SEED-SOWING FOR VEGETABLE PLANTS.

NOW is the time, dear friends, with most of you for sowing the seeds for cabbage, cauliflower, tomato, celery, and, if you choose, kohl-rabi, onions, beets, etc. Some may urge that it is altogether too early; but I tell you, strong, thrifty, early plants, that have been several times transplanted, almost invariably find a customer, and at good prices. A tomato-plant, for instance, that has been transplanted until the root is a great mass of fibers, with a good short stout stalk is worth five or even ten cents, if the ordinary thin delicate spindling plants are worth a cent apiece. If they threaten to grow too fast, keep them growing slowly, in a cooler temperature. This cooler temperature, with freedom from frost, is easily secured by frames of cloth instead of glass; and the common cheap muslin, such as you get at the stores, answers, so far as I know, as well as the water-proof fabric. Perhaps, however, the latter lasts enough longer to pay for getting it. For full particulars in regard to this matter, see our new book, "What to Do, and How to be Happy while Doing it."

MORE ABOUT THE CHILD THAT GREW SO FAST; HIS RECENT DISCOVERY, AS MENTIONED IN OUR OWN APIARY, THIS ISSUE.

OUR older readers will doubtless remember that our old friend E. A. Morgan, who has given us such a valuable invention (see page 110), is none other than the one we named, some years ago, "the A B C child who grew so fast." You see, friend M. took hold of bee culture so suddenly, and made such astonishing strides, that we were all surprised. If I remember correctly, he has had some mishaps that didn't turn out so lucky as this one, when he let those sheets of wax tumble into the pork-barrel. The latter mishap bids fair to be not only lucky for friend M., but a pretty big streak of luck for all of us. Just think of it! a great invention coming about by being in such proximity to the pork-barrel! If that is not jumping from the sublime to the ridiculous, then I do not know. Can't friend Secor weave us a poem with the above materials? Well, old friend, we owe you a vote of thanks, any way. Perhaps it ought to be something more than thanks. But you see you did not study it out at all. It is like the boy who whistled out in school. He disclaimed all responsibility, on the ground that "it whistled itself."

SPECIAL NOTICES.

WHEELBARROWS, WITH GAS-PIPE LEGS AND HANDLES AND WOOD BOX.

We still have a few of the old iron wheelbarrows on hand that we wish to close out, and to do so we offer them at $3.50 each.

REDUCTION IN THE PRICE OF GARDEN-SEEDS.

Since our list was printed in the January No., we have secured many important reductions in the price of staple seeds. At the same time, I believe we get the *very best* stock that can be furnished. For prices, see our new seed-list, which we hope to have ready to mail in about a week.

NEW 10-INCH FDN. MILL, $17.00.

A customer in Eufaula, Ala., is holding "a 10-inch A. I. Root comb-foundation machine, which has never been used, and is in the original box in which it came from the factory." To make a quick sale we offer this machine for $17.00 cash. This is an excellent opportunity for some of our Southern friends to obtain a new mill at a reduction, and save freight or express charges.

ANOTHER DECLINE IN PRICE OF JAPANESE BUCKWHEAT.

It gives us more pleasure to inform our readers of a decline in prices than of an advance. This time it is the Japanese buckwheat that has made such astonishing yields the past season, in spite of drought. We have succeeded in securing a large lot at a price to enable us to offer it at the following prices: 1 lb., 12 cts.; ½ peck, 60 cts.; 1 peck, $1.00; ½ bushel, $1.90; 1 bushel (50 lbs.), $3.50; 5 bushels or over, $3.00 per bushel.

THE "GRAND RAPIDS" LETTUCE.

At this writing, nearly half of my eight ounces of seed has been sent off in the 5 and 25 cent packages; and the prospect is, that I shall get my money back, and have some seed for our own greenhouse and outside grounds besides. At the same time, the seed will be tested by thousands of different people during the coming year. For five cents you get about 70 or 80 seeds of lettuce, postpaid, by mail.

DISCOUNTS FOR EARLY ORDERS.

During the month of February we allow a discount of 3 per cent from our entire catalogue, as an inducement for our customers to send their orders now. We have great piles of goods ready for the busy months of April, May, and June; but the experience of former years has taught us that you are wiser to order early than to depend on this stock on hand, for it has *usually* been exhausted right in the midst of the busy time, when all the friends want their goods by first train. We try each year to be better prepared than the year before; but each year, so far, has brought increased trade, so that some delays were unavoidable, however much we regretted them. We are better prepared this year than ever before for promptness, and we want, if possible, to be prompt through the entire season. You can help us, as well as yourselves, if you anticipate your needs and send some of your orders now.

MAPLE SUGAR AND THE SUGAR-BUSH.

The season for making maple sugar and syrup is almost here; and those who expect to engage in the business are looking about for best appliances and methods. You don't know what is best, nor the many short cuts in the process, till you have read Prof. Cook's new book on "Maple Sugar and the Sugar-bush." This book was written in the spring of 1887, at my request. As the author has, perhaps, one of the finest sugar camps in the United States, as well as being an enthusiastic lover of all farm industries, he is better fitted, perhaps, to handle the subject than any other man. The book is written in Prof. Cook's happy style, combining wholesome moral lessons with the latest and best method of managing to get the finest sugar and maple syrup, with the least possible expenditure of cash and labor. Everybody who makes sugar or molasses wants the sugar-book. It has 42 pages and 35 cuts. Price 35c; by mail, 38.

THE BEE-KEEPER'S WHEELBARROW A BOON TO ALL.

We have been selling this wheelbarrow for about two years, and it elicits praise and admiration everywhere. When we received the first lot we gave one to our mail-carrier on which to wheel the mail up to the postoffice. He had not been using it long when one of our Medina meat-market men inquired where he got it; and, finding we had them for sale, soon purchased one for delivering. The grocers, also, noticing how light, strong, and tasty they were, and also that the price was so low, soon supplied themselves. Private families saw many places where they would help them, and purchased, till, within the past two years, we have sold 15 or 20 of them in our own little town of 1500, without any solicitation on our part. They simply sold themselves. We cite this to show you how taking they are, and how easily some of you who read this may bring a blessing to your neighbors and a little remuneration to yourselves for the trouble. We have so much confidence in them that we have given the factory an order for a carload of 500; and by so doing we have secured a special low price. We are thus enabled to offer extra inducements to those who buy in quantities, or to dealers who advertise them in their circulars, and to the trade generally. See our ad. on another page, and write us for special prices, naming the quantities of each size you want. The large size seems to take best.

ADVANCE IN PRICE OF PLATE-GLASS AND GLASSWARE.

Owing to a strike of nearly if not quite all the workmen in the glass-factories of the East, including those of Pittsburgh, which is likely to last for some months, the price of plate-glass and glass honey-tumblers and pails has materially advanced. As we put in a large stock of plate-glass of the sizes used for shipping-cases (given on page 13 of our catalogue) last summer, before the advance, we will still sell at the old prices. We are not so fortunate, however, in regard to honey-tumblers and glass pails, for we have very few of these in stock. Of the screw-top glass pails we have but 800 of the 1½-lb. size; 400 ½-lb., and none of the 1-lb. size, and it is likely to be several months before we shall be able to get more. Of the "Oaken Bucket" glass pails, we have 400 ½-lb. size, and 100 1-lb. size. We still sell what we have of these at the old prices, until further notice. The half-pound (9-oz.) and one-pound (15-oz.) honey-tumblers have advanced in cost to us 3 cents per doz., or ¼ cent each, and prices will be, until further notice, as follows: ½-lb. (9-oz.) size, 3 cts. each; $2.90 per 100; $6.15 per bbl. of 250; $23.50 per 1000; 1-lb. (15-oz.) size, 4 cts. each; 35 cts. for 10; $3.25 per 100; $5.80 per bbl. of 200; $27.50 per 1000. You notice we indicate in parentheses how much ordinary honey these tumblers will actually hold. They are the nearest to ½ and 1 lb. that we are able to get at present. We can get 10 and 16 ounces of gilt-edge basswood honey into them, and they are what we have been selling for half a dozen years back. We have on hand 4 bbls. (800) of a smaller 1-lb. tumbler that holds 13 oz. of ordinary honey, or 14 oz. extra thick. These we will sell at the old price of $5 25 per bbl.

SEEDS. Pkt. new kind Tomato Seed, very choice, 3c. Catalogue free. F. B. MILLS, Thorn Hill, N. Y.
3-4-5d

APIARY FOR SALE.

I offer for sale my apiary. It is in good shape, with suitable hives. A change in my business makes this necessary. W. H. SIMMONS,
203 Market St., Williamsport, Pa.

Wants or Exchange Department.

Notices will be inserted under this head at one-half our usual rates. All ad's intended for this department must not exceed 5 lines, and you must SAY you want your ad. in this department, or we will not be responsible for any error. You can have the notice as many lines as you please; but all over five lines will cost you according to our regular rates. Of course, this department is intended only for bona-fide exchanges.

WANTED.—A situation as an assistant in an apiary, by a young man active and willing, has no experience, but wants to learn. Does not expect large salary. E. ALLEN SCHOFIELD.
Lake Waccabuc, N. Y.

WANTED.—A young single man as assistant bee-keeper, having had some experience in queen-rearing. Write at once, stating wages, etc., to
P. L. VIALLON, Bayou Goula, La.

WANTED.—An apiarist with not less than two years' experience. Address
E. Y. TERRAL, Cameron, Milam Co., Texas.

WANTED.—Bee-help for 1888. One man with experience and one wishing to learn the business. 300 colonies, 30 years' experience.
S. I. FREEBORN, Ithaca, Wis.

WANTED.—A situation wanted by an experienced hand for the season of 1888. Address
S. W. WHITE, Liberty, Mo.

WANTED.—To exchange 125 P. R. fowls. Have bred carefully for five years. Am offering fine chicks for $1.00 each; per pair, $1.75. Eggs for hatching, 75c per 14. Will satisfy you.
MRS. C. E. HATCH, Kentland, Newton Co., Ind.

WANTED.—To exchange new Simp. hives for fur-skins, either red-fox or skunk. Address
A. P. SHARPS, Exeter, Luzerne Co., Pa.

WANTED.—To exchange silverhull buckwheat; also nursery-grown transplanted Scotch pine, Norway spruce, red cedar, and bearing-sized Concord grapes, for alsike clover-seed and brood fdn.
R. A. LEWIS, Cherokee, Iowa.

WANTED.—To exchange 3 colonies of Italian bees for 2 bushels of alsike clover-seed.
JNO. A. THORNTON, Lima, Ills.

WANTED.—To exchange hives, smokers, foundation, sections, etc., for honey or offers.
OTTO LESTINA, Derby, New Haven Co., Conn.

WANTED. — To exchange Cuthbert raspberry-plants, at $5.00 per 1000, for lamp-nursery, bees, foundation, or any thing of value to me. Address
P. D. MILLER, Grapeville, Westmoreland Co., Pa.

WANTED.—To exchange P. Rock chickens, pure good stock; P duck, and eggs for hatching, for bees, sections, foundation, or wire nails.
SPRING AND MEADOW POULTRY YARD,
Mulberry, Pa.

WANTED.—To exchange catalogue of best section case on earth, bees and queens, for your address. 3d FRANK A. EATON, Bluffton, O.

WANTED.—To exchange Wheeler & Wilson sewing-machines (new) for honey, bees, or supplies. J. A. GREEN, Dayton, Ill. 20tfdb

WANTED.—To exchange bees in Langstroth or Simplicity hives, for disk-harrow and hand seed-drill. I also want seed-catalogues. Address
W. H. PUTNAM, River Falls, Wis.

WANTED.—To exchange Ohio black-cap plants and Cuthberts, for sections or beeswax.
JAMES HALLENBECK, Allamont, Alb. Co., N. Y.
24-2db

WANTED.—To exchange pure P. Rock chickens, bred from prize-winning stock, large and well marked, for a Barnes foot-power saw, alsike clover-seed, or white water-lily roots. Address
2345d B. D. SIDWELL, Flushing, Belmont Co., O.

WANTED.—To exchange one V-groove or 4-piece sections or supplies for one of A. I. Root's 10-inch fdn. mills, or any other good make of machine.
2-3d S. D. BUELL, Union City, Michigan.

WANTED.—To exchange 250 colonies of bees, for horses, mules, wagons, buggies, and 4 h. p. engine, or any thing useful on a plantation.
21tfd ANTHONY OPP, Helena, Phillips Co., Ark.

FREE! FREE! FREE!

Upon application. Our 28th Annual Price List. A full line of

BEE-KEEPERS' SUPPLIES.

CHOICE COMB FOUNDATION AND WHITE-POPLAR SECTIONS A SPECIALTY.

100 COLONIES OF CHOICE ITALIAN BEES

for sale cheap. Also NUCLEUS COLONIES and QUEENS. Orders booked now. Address

WM. W. CARY & CO.,
Colerain, Franklin Co., Mass.
Successors to WM. W. CARY. (Please mention GLEANINGS.)

FOR SALE.

DESIRING to go to the Pacific coast on account of my health, I offer my place, with two apiaries of 115 colonies of bees, with every thing needed to run them. G. A. WRIGHT,
3tfdb Glenwood, Susq. Co., Pa.

PURE ITALIAN BEES

In best hives, double-walled, in winter; 8 frames, 12¼x12¼ in. each, at $5.00 per colony; or same in light strong shipping-boxes, 75 cts. less. Discount on large lots. **DR. G. W. YOUNG,**
3-5-7d **Lexington, Mo.**

THERE IS MONEY IN IT!

Seventy-Five Colonies of Italian Bees
GIVEN AWAY

and capacity for 130, to any person who will buy a house and two acres of land for its real value. The bees and house and bee-house are in good order. Write for particulars to M. R. NICHOLS,
3tfdb Weaver's Corners, Huron Co., Ohio.

New Orleans Apiary.

I will breed and mail guaranteed pure Italian queens, from the best stock for business, for one dollar each, the coming season. Will be ready to mail about the first of March. Orders solicited.
3d **J. W. WINDER, New Orleans, La.**

DADANT'S FOUNDATION FACTORY, WHOLESALE AND RETAIL. See advertisement in another column.

$16 Buys our **DAISY HARNESS**, worth at retail **$25** Sent to examine and return at our expense. Catalogue free. **CHICAGO HARNESS CO.,** Wholesale Mfg., 375 Wabash Ave., Chicago, Ill.

MUTH'S
HONEY-EXTRACTOR,

SQUARE GLASS HONEY-JARS,
TIN BUCKETS, BEE-HIVES,
HONEY-SECTIONS, &c., &c.
PERFECTION COLD-BLAST SMOKERS.

Apply to CHAS. F. MUTH & SON,
CINCINNATI, O.

P. S.—Send 10-cent stamp for "Practical Hints to Bee-Keepers." 1tfdb

G. B. LEWIS & CO.

WE make the best Bee-Hives, the best Sections, the best Shipping-Crates, the best Frames, &c.

☞ We sell them at the Lowest Prices.

Write for free Illustrated Catalogue.

G. B. LEWIS & CO.,
1tfdb WATERTOWN, WIS.

ITALIAN QUEENS BEE-HIVES,
T-TIN CASES, SECTIONS, METAL CORNERS,
Honey-Extractors, and Fruit-Boxes.
SEND FOR PRICE LIST.
B. J. MILLER & CO., - Nappanee, Ind.

HERE I COME

To say that E. Baer, of Dixon, Ill., has sold out his supply business to the Goodell & Woodworth Mfg. Co., who will sell V-groove basswood sections at from $2.75 to $4.00 per M. Other supplies correspondingly low. Samples and circular free. Address the **GOODELL & WOODWORTH MFG. CO.,**
3tfdb **ROCK FALLS, WHITESIDE CO., ILL.**

BEES, Queens, Hives, Given Comb Foundation, Apiarian Supplies, German Carp, Small-fruit Plants. Send for catalogue free. E. T. Flanagan, Belleville, Ills.
1-24db.

LOOK HERE!

A complete hive for comb honey, for only $1.30. Planer-sawed, V-groove sections a specialty. Price list free. **J. M. KINZIE & CO.,**
17tfd **Rochester, Oakland Co., Mich.**

2 SIMPLICITY B-hives, 2 covers, 10 brood-frames, 7 wide frames, and 56 one-piece 1-lb. sections, all in flat, $1.10. Leconte, Kieffer's Hybrid, and Bartlett pear-trees, 20 cts. each; 13 White-Leghorn chicken eggs, 50 cts.
3-5-7d T. A. GUNN, Tullahoma, Tenn.

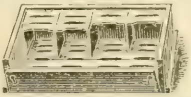
NEARLY THIRTY TONS
—OF—
DADANT'S FOUNDATION
SOLD IN 1887.

It is kept for sale by Messrs. T. G. Newman & Son, Chicago, Ill.; C. F. Muth, Cincinnati, O.; Jas. Heddon, Dowagiac, Mich.; F. L. Dougherty Indianapolis, Ind.; B. J. Miller & Co., Nappanee, Ind.; E. S. Armstrong, Jerseyville, Illinois; Arthur Todd, 2122 North Front Street, Phil'a, Pa.; E. Kretchmer, Coburg, Iowa; P. L. Viallon, Bayou Goula, La., M. J. Dickason, Hiawatha, Kansas; J. W. Porter, Charlottesville, Albemarle Co., Va.; E. R. Newcomb, Pleasant Valley, Dutchess Co., N. Y.; D. A. Fuller, Cherry Valley, Ill.; J. B. Mason & Sons, Mechanic Falls, Maine; G. L. Tinker, New Philadelphia, O., Jos. Nysewander, Des Moines, Ia.; C. H. Green, Waukesha, Wis.; G. B. Lewis & Co., Watertown, Wis.; J. Mattoon, and W. J. Stratton, Atwater, O., Oliver Foster, Mt. Vernon, Iowa; C. Hertel, Freeburg, Ill.; Geo. E. Hilton, Fremont, Mich.; J. M. Clark & Co., 1409 15th St., Denver, Colo., and numerous other dealers.

Write for *free* samples, and price list of bee supplies. We *guarantee every inch* of our foundation *equal to sample in every respect.* Every one who buys it is pleased with it.

CHAS. DADANT & SON,
3btfd **Hamilton, Hancock Co., Illinois.**

NEW HIVE
CIRCULAR NOW READY.
ADDRESS
JAMES HEDDON, Dowagiac, Mich.



Eaton's Improved
SECTION CASE.
LATEST AND BEST. Send for free catalogue. Address
FRANK A. EATON,
3d **Bluffton, Ohio.**

If you Wish to Obtain the
Highest Price for Honey
THIS SEASON,
WRITE TO HEADQUARTERS,
F. G. STROHMEYER & CO.,
Wholesale Honey Merchants,
17-4db **122 Water St., New York.**

NICE FOUNDATION, 6 to 7 feet per pound, 30 cts.; 8 to 10 feet, per pound, 35 cts. Wax worked for two-fifths, or 10 cts per pound.
3tfd S. & A. M. SMITH, Mattoon, Coles Co., Ill.

THE BEE-KEEPERS'
REVIEW!

For January is now out, and contains the following original articles: "Disturbance Not Necessarily Injurious," R. L. Taylor; "Bees are Summer Birds," E. M. Hayhurst; "Disturbing Bees in Winter," Jas. Heddon; "A Niche that Needs Filling," M. M. Baldridge; "Daily Visits no Disturbance," J. H. Robertson; "Bees Winter Well in a Swinging Tree-top," F. Boomhower; "Keep the Bees Quiet in Early Winter," H. R. Boardman; "Continued Disturbance Injurious," J. M. Martin; "Light Not a Disturbance," Dr. A. B. Mason; "Disturbance Not Injurious, if Other Conditions are Right," Eugene Secor; "Bees Undisturbed by Light," H. D. Cutting.

Following the above come editorials upon: Price of the REVIEW—Wood or Tin for Separators—Is the Latter "Colder" than the Former?—"Not According to Nature"—Mr. Heddon and the REVIEW—Disturbing Bees in Winter Seldom Injurious—Temperature to be the Special Topic of the Next Issue—Unfinished Sections vs. Foundation—A Modern Bee-Farm.

After the editorials, room is given for the following extracts: "Modern Bee-journalism," M.; "Brine for Soaking Dipping-boards," M. M. Baldridge; "Less Afraid of Disturbance," Dr. C. C. Miller; "Injured by Passing Trains," G. M. Doolittle; "Stamping on the Floor Above a Bee-cellar," Dr. A. B. Mason; "Disturbing Bees Out of Doors." G. M. Doolittle; "Handling Bees in Winter," F. Boomhower.

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GEO. E. HILTON, Fremont, Mich.

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HONEY COLUMN.

CITY MARKETS.

NEW YORK.—*Honey.*—For the past few weeks the demand for honey has slackened off to some extent, as it generally does at this time of the year. In order to make sales now, we are obliged to shade prices slightly. About the middle of January we expect the demand to be more active again, at firmer prices. F. G. STROHMEYER & CO.,
Jan. 9. 122 Water St., N. Y.

CINCINNATI.—*Honey.*—There is a slow demand for comb honey, with a large supply of the best we ever saw. Commission houses are well supplied. It brings 16@20c in the jobbing way. Demand is fair for extracted honey in square glass jars. Scarcity for the past few months, and the advance, has checked somewhat the demand from manufacturers for dark honey, which I hope is temporary only. It brings 4@9c on arrival. *Beeswax.*—There is a fair demand, which brings 20@22c on arrival for good to choice yellow. CHAS. F. MUTH & SON,
Jan. 9. Cincinnati, O.

COLUMBUS.—*Honey.*—Market is quiet. I quote the following prices: Choice white, 18@20c; 1-lb. sections, dark, 14@15; extracted, 10@12; *Beeswax*, 20@22. Our stock of honey is very light here at present, but I think the prices will have to come down to 16 or 17 cts., which I think would create a better demand. EARLE CLICKENGER,
Jan. 9. 117 South 4th St., Columbus, Ohio.

MILWAUKEE.—*Honey.*—Market quotations on honey unchanged from last report. However the demand for honey of all sorts is not urgent. Comb honey is especially dull. *Beeswax*, 22@25, nominal.
A. V. BISHOP,
Jan. 10. Milwaukee, Wis.

ALBANY.—*Honey.*—Market is quiet, and prices unchanged; will not be much change now until it is shown that there is not enough to go around. If so, then it will be higher. Consignments solicited.
H. R. WRIGHT,
Jan. 9. 328 Broadway, Albany, N. Y.

ST. LOUIS.—*Honey.*—Honey is dull—no quotable changes otherwise in the market. *Beeswax*, choice, 20c; fair, 18¼@19½; dark, 15@16; where mixed with grease, half price. W. B. WESTCOTT & CO.,
Jan. 9. St. Louis, Mo.

KANSAS CITY.—*Honey*—We quote choice white 1-lb. sections, 18@20c; dark, 1-lb., 16@18. White, 2-lb., 18c; dark, 16. Extracted, in cans, white, 9c; in bbls., 8c. California, 2-lb. sections, 18c; extracted, in 60-lb. cases, 8@9c. *Beeswax*, 18@20c. Supply of honey is larger than the demand, and sales are slow; the trouble seems to be, that prices are too high. CLEMONS, CLOON & CO.,
Jan. 9. Kansas, City, Mo.

CHICAGO.—*Honey.*—Honey sold slowly during December; prices range from 17@18c for choice 1-lb. sections, while fancy lots bring up to 19@20c in a slow single-case way. Extracted is steady at 7@10c. *Beeswax*, 23c. Trade this month so far is light.
R. A. BURNETT,
Jan. 9. 161 So. Water St., Chicago, Ill.

DETROIT.—*Honey.*—Best comb honey continues to be quoted at 18@20c. Supply only fair. Extracted, 9@11, according to quantity and quality. Sells best in 60-lb. tin cans. *Beeswax*, 21@23c.
Bell Branch, Mich., Jan. 9. M. H. HUNT.

ST. LOUIS.—*Honey.*—We quote choice comb 18@20c; strained, in barrels, 5½@6½; extracted, in bbls., 4½@8; in cans, 8@10. *Beeswax*, 20c for prime.
Jan. 9. D. G. TUTT & CO.,
206 N. Commercial St., St. Louis, Mo.

KANSAS CITY.—*Honey.*—The demand for honey is light; 1-lb. sections, white, 18@20c; 1-lb., dark, 15@16; 2-lb., white, 17@18; 2-lb., dark, 14@15; extracted, white, 7@8; dark, 5@6. HAMBLIN & BEARSS,
Jan. 10. 514 Walnut St., Kansas City, Mo.

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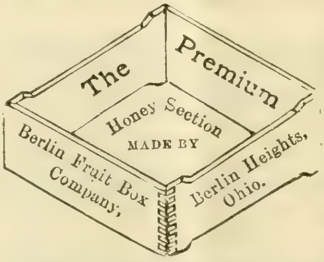

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Vol. XVI. Jan. 15, 1888. No. 2.

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TWO ITEMS OF IMPORTANCE.

KNOWLEDGE OF A LOCATION, AND KNOWLEDGE OF THE ADVANTAGE TO WHICH BEES GATHER HONEY.

We have been having, for a few days back, a regular blizzard here, blockading roads and keeping all indoors. To best use the time, I have been looking over my correspondents' letters, classifying them, and storing them away in such a shape that I could refer to them at a moment's notice in the future, should it be necessary to do so. The result of this "looking over" has led me to write the following article, on two old subjects. If these things, "knowledge of a location," and "age at which bees gather honey," could be more thoroughly impressed on the mind of every bee-keeper, much more would be realized in honey, according to my opinion, than is now obtained.

KNOWLEDGE OF A LOCATION.

Successful bee-keeping is made up of numerous items, all of which bear an important part toward the success attained; hence the more thoroughly a person understands when to attend to all these items, so that the right thing is done at the right time and in the right place, the more sure that person is to attain the success desired. Among these items, a thorough knowledge of the location in which we are situated, as to its honey-producing flora, is by no means the least. Best hives, best strains of bees, and best locality, all play an important part in the success of the apiarist; but none of these are more important than a knowledge of our location. Some of the letters received the past year show that there is great ignorance along this line among bee-keepers; and as long as this ignorance remains, no one can expect to secure the best results. How are we to know when to commence to build our bees up so as to have our hives filled with bees and brood at just the right time, when to put on boxes, and when to have our swarming all done up, unless we know which flowers produce our honey? The getting of bees at just the right time is the *great* secret of success, and hives full of bees at any other time amount to nothing.

When I first began bee-keeping I was told by an old bee-keeper, that, when he lived in my neighborhood, his bees got an early start by getting pollen off the willow-buds when they first swelled in the spring, as there was considerable golden willow on his place. So I set it down that golden willow produced the first pollen. Soon after, I read in Quinby's book that golden willow produces no pollen, but that the first comes from skunk's cabbage. About April 10 I saw the first pollen coming in, and I at once went for the willows, but not a bee was to be seen about them. Next I went to the swamp, around which the skunk's cabbage grew, and there I found the little fellows rolling up the pellets of bright yellow pollen, and carrying it home, thus showing that Quinby knew more of what he was talking about than did my old bee-friend. Then as every new variety of pollen came into the hive I traced it out and kept in my diary the date of its blooming, from the skunk's cabbage in the earliest spring, to the witch-hazel in latest fall. Then the same was done as regards honey-producing plants and trees, golden willow giving the first, and selendine and a weed with white blossoms, in the woods, the last. This was kept up for five years, and then notes compared, so as to give the mean time of the blossoming of all plants visited by the bees. Thus with this knowledge I could work the bees understandingly; and if the season was early or late, vary operations accordingly.

If those entering, or those already in the ranks of bee-keeping, would thoroughly post themselves in this matter, they would find it a great service by way of receiving a good yield of honey.

AGE AT WHICH BEES GATHER HONEY.

This may be thought by some to be of little interest; but taken in connection with the above, it has much to do with the surplus honey we get. Many seem to suppose that the bee is capable of going to the fields to gather honey as soon as hatched, or in three or four days at least; but some facts prove that they do not do so. Bees may be forced to go into the fields for pollen and honey at the age of from four to six days; but when the colony is in a normal condition, as it always should be to store honey to the best advantage, the bee is 16 days old before it gathers honey. If we take combs of bees just hatching, and place them in a hive without any bees, as is frequently done to introduce a valuable queen, we can see young bees not over five or six days old go to the fields, being compelled to do so for pollen, water, etc., because there are none of an older age to go; but this does not prove that the bees of that age usually do so, any more than the experiment of feeding 20 lbs. of honey to bees confined to the hives before one pound of wax is produced, proves that it always takes 20 lbs. of honey to produce one pound of comb.

I have conducted two experiments since I kept bees, to ascertain the age at which they first gather honey; and as each prove the same, I believe 16 days to be the time when the bee brings her first load of honey, when the colony is in a normal condition.

About the middle of June a black queen is removed and an Italian introduced in her place. The date was kept regarding the time the last black bee hatched, and when the first Italian emerged from the cell. Then the hive was watched, and not an Italian was seen at the entrance till the sixth day, while none were noticed on the wing, marking their location till the eighth day, when, at 2 P. M., quite a few came out for a "playspell," as it is termed. Every pleasant day the number of Italians at these playspells increased, but none were seen out of the hive at any other time till the 16th day after the first Italian hatched. At this time a few came in with pollen and honey, commencing to work at about 10 A. M. After this the number of Italian honey-gatherers increased, while the number of blacks decreased, until on the 45th day after the last black bee was hatched, when not a black bee was to be found in or about the hives.

If the above is correct, and I believe it is, it will be seen that the eggs for our honey-gatherers must be laid by the queen 37 days before our main honey-harvest, if we would get the best results from our bees, as it takes 21 days from the time the egg is laid, to the time the bee emerges from the cell; and this, added to the 16, makes the 37 days. To be sure, the bees, from the time they are three days old, help to perform the labors in the hive, such as building comb, feeding the larvæ, evaporating nectar, etc., hence are of much value toward securing the crop of honey, if we have plenty of bees over 16 days old; but otherwise, all hatching after the middle of the honey-harvest are of little use. I have given this article thus early, so it may be in time for our Southern friends; and I believe that on these two items hangs very much of our success or failure as apiarists. G. M. DOOLITTLE.

Borodino, N. Y., Jan. 2, 1888.

I have often had the above points in mind, friend D.; but several things come in to make our plans uncertain, even if ever so well laid. During this past season, for instance, we made great calculations on clover honey which—didn't come at all! Our hives were boiling over with bees, and no surplus. This brought them in good shape for basswood, and they did well on it for a few days. Then came the question, Shall we keep them full of bees and brood for fall harvest, or not? In a good many locations this great army of workers have to be fed to keep them from starving, while in other places quite a bountiful yield of fall honey came from goldenrod, aster, etc.; and oftentimes localities that have not for years given fall honey, suddenly give a fair yield, while those that have almost always given stores enough in the fall to winter them over, frequently fail entirely. The consequence is, the one who supposed his bees were ready for winter, found them in a starving condition; and many of the brethren who bought sugar, and went out to prepare the hives for feeding, found the brood-nest full of honey, and in some cases the bees were filling boxes rapidly, while the barrels of sugar were just being unloaded for feeding up for winter. Notwithstanding this, I think it is an excellent plan to know where the honey comes from, and when it may be expected; and also to avoid loss, caused by raising a great lot of consumers when they are not needed or wanted.

SECTIONS FILLED ON ONE SIDE.

OLIVER FOSTER ARGUES IN FAVOR OF SECTIONS OPEN ON ALL SIDES.

ON page 929 Dr. Miller speaks of the difficulty in getting bees to build uniformly on both sides of the foundation in sections; and as he leaves the problem unsolved, and invites suggestions from others, I will offer a few.

The doctor thinks he sees the cause in their proneness, when honey is scarce, to continue storing in combs or cells already started. He also hints at two other causes—too large starters, and too few bees; but perhaps these last are conditions to be overcome rather than to be removed. I will suggest another cause, which I think plays an important part: Imperfect communication between the sections. Bees act upon the principle that "in union there is strength." Especially is this true in comb-building. Like a wise general they are very cautious about dividing their forces without having a direct communication with the main body. So they do not begin work indiscriminately in different parts of the super, but extend their combs from one common center. As an illustration, take a nucleus occupying the central part of two combs. Place brood-frames filled with foundation, at the side of these combs. The cluster of bees will occupy the central part of the space between the first sheet of foundation and the comb, but perhaps will not extend to the edge of the sheet at any point. They may draw out and fill the cells on the side next to them, but they will never pass into the next space to work the other side until the cluster expands to some point where they can pass through or around the sheet without leaving the cluster. Now, if a hole is made through the center of the sheet they will not hesitate to occupy and work the other side. Other conditions being the same, the more direct the communication with the main cluster, the sooner will the other side be occupied and worked.

If the nucleus could be so arranged that work would progress in the direction of the combs instead of across them, there would be a great advantage, as there would then be no inducement for the bees to favor one side. Fortunately we can arrange our section boxes in this way:

By using open-end sections, and by getting the bees started in one "cross row," by using empty comb in that row the work will progress from this row to the ends of the case in the most natural way. Since adopting this method I have had no trouble at all from one-sided sections.

Several years ago I used 5000 sections with openings so narrow that bees could not pass between the outside row and the side of the case. I now make the slots ¼ inch deep, or ½ inch between two sections. Some of these outside sections would be filled and sealed on the inside, but there would not be a cell on the other side. In fact, the side walls of the foundation would often be all removed by the bees, leaving the septum scraped smooth and thin. The other sections in the case would be well filled. The foundation used was made on the Given press, running about 10 square feet to the pound. The sheets were cut 4¼×4¼, and were fastened to the sections by pressure, on all four sides. The corners of the sheets were first clipped off enough to avoid wrinkling. One corner was cut away enough to leave a small passage for the bees. This opening was the only one leading to the outer side of these outside sections, and I am satisfied that isolation was the only cause of their not being filled on that side. As the foundation was securely fastened to all sides of the section, there was no bending to one side, such as Dr. Miller mentions. I have found, with him, that starters 1½ inches wide or less will give straighter combs, and of more uniform thickness, than full-sized sheets. The reason seems apparent to me. The bees on the opposite sides can communicate more freely with each other, and thus avoid misunderstandings (?); for how are the bees on one side of a large sheet to know how deep are the cells on the opposite side?

WHY COMBS ARE SOMETIMES BUILT BETWEEN THE STARTERS.

I have not had experience in this, and may be mistaken; but I am inclined to think the trouble comes about in this way: When honey is coming in rapidly, the few starters that are found within the limits of the cluster can not be drawn out fast enough to receive all the honey. More wax-workers must be employed than can work to advantage on the foundation, so other combs are started between; but when honey comes in slowly, this extra comb-building force is unnecessary; and when a limited comb-building force is employed, it seems necessary for them to confine that force to a limited surface, according to comb-building economy, hence an occasional neglected side. My suggestions to avoid "one-sided" comb honey may be summed up as follows: 1. Use open-end sections, to allow comb-building to progress naturally in the direction the combs run. 2. Have direct communication between both sides of each section and the brood-chamber below. 3. Let there be free passage between the outside rows of sections and the sides of the case. 4. Use clean white comb in all of the sections in one of the central rows running across the case from side to side. The observance of these points will enable us to produce "well-balanced" comb honey; at least, that is according to the experience of OLIVER FOSTER, 270, 250.

Mt. Vernon, Iowa.

Friend F., I have noticed what you say in regard to nuclei or weak colonies extending the cluster, and getting around the combs where there are no winter-passages, as they have been sometimes called; and as you state it, it does seem as though there ought to be an advantage in having sections open on all sides. In fact, I did not consider, until you just now brought out the truth of it, that our ordinary way of making sections, with the sides close-fitting, partitions off the hive completely from top to bottom; that is, where sections are used in the wide frames there is no opening from front to rear, except under the wide frames. In view of this, it seems to me that your suggestion must be a good one; and I am inclined to think that question No. 25 was asked mostly of those who had not had much practical experience in using sections with open *sides*.

NUMBER OF COLONIES PER SQUARE MILE.

DR. MILLER CONSIDERS THE SUBJECT.

MR. J. W. PORTER in GLEANINGS, p. 816, Nov., 1887, says, "Somewhere we have read that in Europe as many as 6000 colonies have been kept on one square mile of land." Every now and then this statement is referred to. It is misleading because not understood. If I am not mistaken, the German mile here referred to is equal to six of our miles, making the German square mile equal to 36 of *our* square miles. I had the impression that 2000 instead of 6000 was the number given, but Mr. Porter is as likely to be right as I. In any case, the story has been running a good many years without any reinforcements by recent facts, and I should receive the 6000 with some grains of allowance. That would be 166 for one of our square miles—a number which might be supported on a square mile possibly, if the coast were clear on all sides; but I much doubt if 36 such square miles in a square block could each support 166 colonies. If 2000 is taken as the number, instead of 6000, that would make 55 colonies for one of our square miles. Mr. Porter starts an interesting query as to the number of colonies supported on a square mile, and intimates a doubt as to 1000 being on a square mile in America, even if 250 of them stand on each of the four corners.

Now, I don't know that any one claims to know any thing positive in this matter; but it may do no harm to do a little estimating. Let us see how many colonies there will be to the square mile, on the assumption that 125 is the limit, for greatest profit, in one apiary, and that three miles is the proper distance between apiaries. There is some reason for this assumption, in the actual practice of bee-keepers who keep a number of apiaries. This would allow for each 125 colonies a hexagon with a diameter of 3 miles and an area of 7.8 miles, or about 16 to the square mile. I confess I had never thought before of such a small number; and it is possible that I am all wrong somewhere, and shall be glad to have any inaccuracy pointed out. I think, however, friend Porter, that you will find 16 nearer the truth than 1000.

If we crowd the ground much more, and put 150 colonies in each apiary, the apiaries being 2 miles apart instead of 3, we then get 43 colonies to the square mile.

To get 1000 colonies to the square mile, if our previous figuring is correct, we need to locate our apiaries one mile apart and put 866 colonies in each. I think hardly any one believes that much surplus would be secured in such a case.

It would be of interest to learn what is the greatest number of colonies in one apiary that has been found profitable. Does any one know of more than 150? Or, to put another question, what is the largest number of colonies that any bee-keeper has kept in one apiary for a series of years? At one time, if I remember rightly, D. D. Palmer said he would keep 400 colonies in one apiary the following season, and I watched with great interest to see how he would succeed; but before he had the chance to increase to that number, if I am not mistaken, he lost all his bees in wintering.

The able editor of the *British Bee Journal* divulged a very interesting bit of information with regard to that successful but extremely reticent bee-keeper, Capt. Hetherington. The captain has 2700 colonies in 20 different apiaries, within a radius of 12 miles, at distances of two or three miles apart. This gives an average of 135 colonies in each apiary. There is an apparent discrepancy between the two statements, that the apiaries are two or three miles apart, and that the furthest is 12 miles from home. If 19 apiaries are planted in hexagonal form at a distance of 2½ miles apart, the furthest from the center will be just 5 miles instead of 12. But we might expect that the inconvenience of roads, the difficulty of finding the best locations, and perhaps the difference in pasturage, would make great irregularity in planting. The probability is, that some of the outside ones are much less than 12 miles from home, perhaps no one so far *in a bee-line*, and that a good many are more than two or three miles apart. If we compromise the matter, and say the average is 4 miles apart, and the furthest 8 miles from home, we get a little more than 9 colonies per square mile. Even if Capt. Hetherington should place his apiaries 2½ miles apart he would have only about 25 colonies to the square mile.

Now, if the friends will report the largest numbers that have been profitably kept in one apiary in different localities, it will be a little help in the problem. C. C. MILLER.

Marengo, Ill.

Friend M., I was pretty sure we were a good deal mixed up in this matter about the number of colonies that can be kept on a square mile; but I think we can very easily find out how many colonies can be kept profitably in a single apiary. Will those who have had experience with from, say, 150 colonies or more in one locality, for the production of honey, please tell us about it? It does not make any difference how many years ago. Who remembers of having a large yield where he had as many or more than the number mentioned, in one locality? Can't somebody in Capt. Hetherington's locality give us something more definite than what we have had from hearsay? And, by the way, I think we have subscribers enough in Europe to tell us about these localities where great numbers of colonies are kept on small areas. Now, although I have said so much in discouragement of honey-farms, I feel quite sure we could easily fix a square mile so it would yield more honey than has ever yet been produced by nature on a single square mile on the face of the earth; and I think, too, we might do it by raising buckwheat, rape, alsike, and mammoth clover, so that we should get our pay in other directions if we did not for honey alone. But it wants about a square mile to do very much at the business. It may not be necessary to *own* the whole square mile, providing the one who has 150 colonies could control the crops raised within, say, half a mile of him in every direction. If you want to make a square mile, make it a little more than half a mile from the apiary; or let any bee-keeper with the above number of colonies pay the farmers around him a sufficient sum to induce him to cover his land with crops bearing honey. If you can not take the time to plant basswoods, as I have done, find a locality where there is a heavy growth of basswood already, then make the cleared land yield honey from plants, as I have suggested. Our proof-reader suggests that the German *short* mile, equal to $3\frac{9}{10}$ English miles, is rather to be understood, where the *long* mile is not mentioned, the latter being equal to $5\frac{3}{4}$ of our miles. This is certainly a very important point, and it seems to me strange that so many years have passed without somebody either here or in Germany calling attention to the misleading statement in our books and journals, about the large number of bees kept on a square mile in Germany.

SECTIONS OPEN ON ALL SIDES.

FRIEND DADANT GIVES US HIS REASONS FOR THINKING THEM PREFERABLE.

NO, friend Root, we have not experimented largely on the open sections; but in what experience we have had, our conclusions have been the same as those of the first and most firm advocate of open sections, a modest man, who does not put himself forward—Oliver Foster. Hutchinson says, and we say with him, "I have seen bees sulk for days during a good honey-flow, simply because the present condition of things was not to their liking." On the other hand, Foster explains very nicely and clearly why bees do not like small receptacles for their honey, and always sulk more in them than in larger ones.

HOW TO RAISE COMB HONEY.

"When we take into consideration that the object on the part of the bees in storing up honey in the summer is to have it accessible for winter consumption, and that in winter the bees collect in a round ball, as nearly as possible, in a semi-torpid state, with but little if any motion except that gradual moving of bees from the center to the surface, and from the surface to the center of this ball, we may imagine how unwelcome it is to them to be obliged to divide their stores between four separate apartments, each of which is four inches square and twelve inches long, with no communication between these apartments."

Now, friend Root, if there is a better description of the instincts and desires of the bees, of their "liking," as Hutchinson says, we wish to see it. We do not wish to be understood as saying that bees *will* "*sulk*" every time with closed sections, and *will not* with open ones, but we do say that the open sections are more to their "liking." Since we have just given the theory of our argument, we will now give the practice.

All of our olden-time apiarists, who have followed the progress of honey-production from the birth of the old *A. B. J.* to this day, will remember the square glass boxes, and the enormous progress that was achieved when Adair invented his now discarded section box. The section box, made of about 10 sections, holding each some 3 lbs., was a very spacious apartment, and was so well liked by the bees that we found that the difference in yield between hives supplied with these and hives supplied with glass boxes was sometimes as 3 to 1. Later on, the three-pound section proving too large, we were, all of us, compelled to set them aside, in order to suit the market. But we have tried, side by side, in the same hive, open frames, open sections and closed sections, and the closed sections were always or nearly always worked last, *all other things being equal*. We have even had one instance in which the closed sections were neglected, *although placed nearest the brood-combs*. Now, friends, please read over those words of Foster, and you will see that the theory agrees with the practice. We will not deny that the open sections have their disadvantages, when it comes to marketing, but we are strongly of opinion that they will get into more popular use. We should like to see our friends give them a thorough trial.

I see by the Question-Box, that, if we are the ones who pay the highest apiary rent, we are also the ones who get the least returns per hive, and yet we are among the ones who think bee-keeping pays. Perhaps this is due to our making the business as economical as possible. With our large hives we have less manipulations, no reversing, less feeding, for we do not run the risk of taking away all the honey when taking away the surplus cases, and we leave the hives in good condition for winter. But there is one thing that helps to make our crops less—it is the lack of basswood in our vicinity. We wish to go on record as preferring the one-piece section to the four-piece. Whether the incorrect answer given was our own mistake or the printer's, it *was incorrect*. We do not believe in four-piece sections now. C. P. DADANT.

Hamilton, Hancock Co., Ill.

Friend D., we are very glad indeed to find that it is a mistake in saying you prefer the four-piece sections; but the mistake was clearly an error of your own; therefore only Mr. Heddon, Mrs. Harrison, and friend Hutchinson are left in favor of the four-piece. In regard to sections open all around, we have for a long time been well aware of all the points you make; but I should say you are putting it pretty strongly if you really mean to say that you think three times as much honey can be secured in very large sections, or even in full-sized frames, if you choose. At the Ohio State Convention, from which I have just returned, Dr. Tinker spoke several times very emphatically in favor of open-side sections. Our friend Fradenburg also vehemently advocated having the surplus honey built in full frames, cutting it out as it is retailed, for chunk honey—the plan which he described to us perhaps a year or two ago. We hope this matter will be fully tested by experiment during the coming season. Our friend Oliver Foster takes up the same matter on page 42.

MRS. CHADDOCK TAKES DR. MILLER TO TASK A LITTLE.

WOMEN'S RIGHTS AND WRONGS.

IN C. C. Miller's letter about who shall hold the pocket-book, he says, "It is womankind I arraign. Whatever may be said about woman in general, there are some who seem to have the impression that a husband is a mere machine to drudge and earn money that his wife may have plenty of money to dress up in fine raiment, and sit and fold her lily-white hands in graceful idleness." Now, I have heard and read about these women with the "lily-white hands" ever since I can remember; but as yet I have never seen a single specimen. Have you, Dr. Miller? I read not long ago how the rich men of New York, the bankers, brokers, and merchants, were wearing out their lives to earn the money to keep their wives and daughters up with the style; but not one of those wives or daughters takes or reads GLEANINGS, and I doubt very much whether you, Dr. Miller, have a bowing acquaintance with them. So you see your shot at the "lily-white hands" falls harmless because of too long range. *All* the women that I know work too hard. I am personally acquainted with some very well-to-do people—women whose husbands are worth from thirty to seventy-five thousand dollars, and not one of these wives has "lily-white hands;" they all work and take care of things, study and plan, do a good part of their own sewing, make over old dresses, and work harder for charity than some poor women do who do their own housework. The farmers' wives of my acquaintance are *slaves*—nothing more nor less—worse slaves than even the colored people of the South ever were. The Southern slave worked simply because he had to; but his conscience did not trouble him very much, and a rainy day was a godsend. The farmer's wives that I know, work because they have to too, but there is never any rainy day for them—no day when the cares of life drop away from them and leave them free; their consciences goad sharper than any master's whip urge them on.

Then, further along, you say it is a sort of "mild insanity" for a woman to want to earn something, to be independent. You do not really believe that, do you? You just meant it for a little joke, but forgot to put the label on, did you not? In Illinois, where I live and where you live, a man and woman will marry, neither of them having a cent in the world. They work and save, and have children, and sometimes one of them dies. If it is the woman, no change is made; the man owns every thing, just as he did before; and when he marries again, his second set of children inherit just as much of his property as his first set. But if it is the husband who dies, every thing must be torn up, overhauled, appraised, and the wife's share, generally one-third, set apart for her, and the rest divided up among the children; and if she marries again, her second set of children get only a share of "her thirds." I agree with you, that there is something "radically wrong;" but for humanity's sake, don't lay it on the women. Men made the laws, and men interpret them. Women submit. And is it any wonder to you, Dr. Miller, that a woman should feel timid about asking for, or spending money that is all her husband's, but is only *one-third* hers? I know that some men say, "My wife and I are equal partners." It sounds well and looks well in print, but it is not so. I know that a man can *will* property to his wife; and if his children or other relations do not prove him to have been insane, she can have the use of it while she lives; then (mostly) it must revert to *his folks*. I think it is good for a woman to have some property of *her very own*. I have been watching this thing for twenty years; and all my observation goes to prove that men whose wives have money *in their own right* are a little more polite and deferential to those wives than are the men who own it all.

MAHALA B. CHADDOCK.

Vermont, Ill., Dec , 1887.

I think, friends, we had not better talk women's rights any more just now, especially as spring is looming up in the distance, and we want to talk over the important matters pertaining to bee culture a little before the bees begin to fly. I want to say, however, that I made a will about twenty years ago, placing all my property in my wife's hands at my death; and I am told by competent authority that she can go right on with business, without wasting time or money in employing lawyers, or doing any thing; and I think it behooves us all to make such provision that our hard earnings may not be taken from the wife and children in case of death, and wasted in useless red-tape proceedings. My wife and I are partners; and when God calls me away I expect her to have as full control of every thing in business matters as I have now.

HELPING GLEANINGS.

HONEY, MAPLE SYRUP, AND—"TAFFY."

DEAR BROTHER ROOT:—Wouldn't you like a little taffy? I know you like maple syrup on your cakes. The idea of liking it better than honey! It must be a very different article from that made in those four great camps in Chicago, and labeled "Pure Vermont Syrup." Did you ever see a big lot of glucose-barrels down in the hollow, behind the camps?

I took GLEANINGS and laid down to rest, and, noticing the number of subscribers, I reckoned up how many more you would have to have to make 8000. I said to myself, "Now, if every one he now has should get *one* more it would double the list; and every one could do it if they would only try." Now, Lucinda Harrison, you start out and get that new one. There, now, is that dear old lady who drives down here so often about her bees, and you have doubled them up in the fall and packed them for winter, never charging; for you know if you did, that every one owning a few colonies would be sending for you, if you would hive a swarm for 50 cents, or take off surplus for a quarter. GLEANINGS would brighten this old lady's home; and when she has read it, she could send it to her only son on a farm in Kansas. Now, who will join hands with me in a merry-go-round to help Uncle Amos? I've a hitch in one leg, and can't go very fast, but I'll get there all the same. Tral-la, tral-la, tral-la.

I think all questions that are answered by reference to a back number are no good. How many of your readers, do you think, will take the trouble to hunt up this back number to see how it is answered?

MRS. L. HARRISON.

Peoria, Ill.

Now, Mrs. H., are you not getting to be a little uncharitable in regard to the adulteration of maple syrup? At one of the R. R. eating-houses in Grand Rapids I saw a very pretty card put up—"Buckwheat Cakes and Maple Syrup, only 25 cts." As I had not been to breakfast, I called for some, just on purpose to see if it were genuine. The syrup was rather dark in color, compared with ours, but I am sure it was genuine, right from the maple-trees, every bit of it. At a hotel in the same city I found genuine *glucose*, and no mistake, put on the table with the buckwheat cakes. But the syrup-cup was not labeled syrup, honey, or any thing else. It was put on with the cakes, and you were to eat it or not as you chose, and I suppose call it what you chose. It was thick, and light in color, but there was so little sweet about it that one of the bee-men suggested we should sweeten it with some sugar out of the sugar-bowl. The taste reminded me of the peach-tree gum we children used to eat, years ago.—I am very much obliged indeed for your suggestions in regard to GLEANINGS; but my experience is, that it would take a considerable pile of money to induce every subscriber to obtain an additional name, or even to induce them to do it on an average. I don't like to have people work for me without pay, or, at least, I don't like to *ask* them to work for me without pay; and we have, therefore, as you may remember, offered every subscriber 25 cts. for showing our journal to his bee-keeping neighbors, and explaining it to them, and getting them to subscribe. Now, where the friends feel disposed to undertake this work of their own accord, as you do, a great many times they may be induced to take a little more time to canvass their neighborhood well, where they know they will get 25 cts. pay for every new name they secure; but this offer has as yet made no great addition to our list. I hope the friends will remember that those who accept of this offer must not *advertise* GLEANINGS at 85 or 90 cts., for they would, perhaps, in that case, gather up many of our old subscribers at a reduced price, without extending our circulation much if any among those who are not acquainted with it.

FOUNDATION, AS DISCUSSED AT THE CHICAGO CONVENTION.

PRICES OF HONEY, AND HOW REGULATED.

EDITOR GLEANINGS:—To the large number of your readers who could not attend the late Chicago convention, GLEANINGS for Dec. 1st is a treat indeed. I never more wished to go to a convention, and all the more regret my inability since reading the meager reports. I had hoped to be able in time for action, to propose the National Capital as the next place of meeting. An active apple campaign has so engaged my attention and energy that I was too late for 1888. I bespeak the consideration of the fraternity in time for 1889. We can have a noble hall in the Agricultural Department building for the meetings. Gen. Coleman assured me of this. It is about time that we had a location east, and a visit to our beautiful Capital can be profitably made by many of the eastern members.

One point was happily brought out at the convention; that is, the relative value of comb and foundation as starters for sections. It certainly is true, that, when bees begin to work, they will draw out shallow combs and foundation, and finish sooner than they will with fully built combs of the year before, if soft foundation be used, and newly made shallow combs. But why?

If the old combs are cleaned out in the fall they get dry and hard, just as old foundation does, and bees do not act on it as they do upon fresh foundation.

Some years ago Mr. John Vandervort told the writer that it did not pay to use old foundation, nor to put it in the sections long before use. Now, this appears to be a mooted question. For foundation does harden; and until the heat of the hive is great enough to soften it, it appears to be disliked by the bees. Friend Chas. Dadant said, some years ago, that the evil could be corrected by exposing a few minutes to the sun's rays; and that it would then be in good condition. Experience has shown this to be a great advantage with brood foundation.

Mr. Vandervort went so far as to say, that, had he a lot of sections with starters put in in the winter, he would prefer to cut them all out and put in freshly made foundation.

The wet appearance so often noticed on old combs refilled and capped, is probably owing to the imperfect attachment of the cap to the old cells, the edges of which are jagged by the honey-knife, or broken, and is, withal, hard and dry, and the juncture is not perfect. A slight leakage is the result, and wet combs. Inasmuch as all nectar is not alike thin, some of it being very thick when gathered, it follows that, under some atmospheric conditions, the ripening objection would not hold as to deep cells.

PRICES ON HONEY, AS CONSIDERED BY MR. BALDRIDGE.

Mr. Baldridge makes some good points. But, let us suppose that the community of buyers is as well posted as the wide-awake bee-keeper; could he, in any such wide-awake community, sell for 22 cents that which was freely sold in the large markets last year at 6 and 7 cents? Why, at the Albany convention last winter a party told the writer he bought a carload of California white-sage honey (which ranks high, does it not?) at 5 cents per lb., delivered in New York. California comb honey was sent to Baltimore, and jobbed out at 10 cents per lb., and even less in cases. The facts are, that in 1886 the markets were glutted. We have no reason to expect a return of old prices for our special commodity while the general decline in the value of all of the products of industry continues to prevail.

When we got 20 cents per lb. and upward for comb honey, sugar was about 60 per cent higher than now. I should think, rather, that friend Baldridge's idea reflected upon the intelligence of the community he sold to. Surely they did not take the bee-journals, or they would have seen prime honey offered at less than half his price.

Here in our town some producers started their honey at last year's prices; and the lowest, 12½ cts., for comb honey as good as the best. I had no trouble in getting 20 cts. for all that I had. The home market should be fully supplied, and at rates that will secure that market to the local producer.

Charlottesville, Va., Dec. 17, 1887. J. W. PORTER.

It has been several times suggested, friend P., that old foundation can be made as good as new by dipping it in water, not quite warm enough to melt it. This, however, would not be practicable with starters already fastened in the sections. I believe that most bee-keepers are in the habit of putting starters in the section boxes in the winter time. You and friend Vandervort would seem to imply that this is a bad policy; but I hardly think the difference is enough to amount to much. If we are obliged to wait until June before we put in our starters, it would be a rather serious matter; for one day in June is often worth more than a week during the cold weather of winter, or even stormy days in spring.—I think that many of the friends misunderstand friend Baldridge somewhat, as there have been other criticisms in the line of yours. Friend B. handles nothing but gilt-edge honey. I remember that, several years ago, he offered a very large price for extracted honey, providing he could get some equal to a sample he had been selling. A good many had very nice honey, but none was equal to his sample. The honey from alsike clover, which we have frequently mentioned, is of this class. We have some of it left, but it is just as transparent now as it was during all of last winter. If handled in a cold room you have to cut it with a knife, but it has not candied a particle; and I tell you, such honey is delicious. It is no trouble to get a half more for this than for the ordinary run of extracted honey.

BEES AND SEWING-MACHINES.

THE TWO OCCUPATIONS ADAPTED TO EACH OTHER.

SEVERAL of the bee-keeping friends have written of the bee-business in connection with other work. I believe school-teaching seems to take the lead so far. For a number of years I have run the sewing-machine business in connection with my bees, and, take it all around, it is the best combination I know of to go with them. With sufficient energy, I think it will pay fully as well, if not better, than the bees. I found it necessary to keep a team to market my honey, and it was just what I wanted for the machine work. Canvassing for machines is work that can be dropped and taken up again with less loss to the business than perhaps almost any other undertaking. When a man begins a school, he must stick to it every day until the term is closed. The sewing-machine trade has some disagreeable features. In the first place, a canvasser of machines is often classed with lightning-rod rascals, insurance agents, etc. There seems to be an odium against the business. But the calling is legitimate, and the only right way to sell machines is by canvassing. Soliciting trade is disagreeable to many, but I do not know that it is any more unpleasant to ask a person to buy a machine than to buy honey. Perhaps the most disagreeable feature is the extreme competition, price-cutting, and dishonorable tricks and methods practiced by unscrupulous competitors. But any one who can stand the soul-harrowing discouragements of the bee-business ought to be proof against every thing else.

When the sale of a machine can be effected without jewing, and all else is harmonious, I know of but few pleasanter ways of making money in a small way. I shall never forget the agreeable acquaintances I have formed in the sewing-machine work. The sewing-machine business is not like a book-agency. It is much more of a business, and one can spend a lifetime, if he desires, in one locality, without wearing out the territory. If one is so situated as to have an office in town, a good many dollars can be picked up in the way of the needle, oil, and repair trade. Selling needles is the prettiest way of making pin money that I ever knew of. However, it is not necessary to live in town to sell machines. Ten miles in the country will accomplish about the same results. A certain amount of work in the sewing-machine business generally yields certain results. I presume many of the friends are nicely situated to go into the work. Any one who has good business ability ought to meet with fair success.

I would advise any one who thinks of starting, to be sure and handle one of the leading machines on the market. There are many launched, but few can stem the tide of competition.

Grinnell, Iowa. JOHN F. WHITMORE.

Thanks for your suggestion, friend W. The point that the sewing-machine business can be taken up and dropped at any time is a good one. Now, why not take honey along with you, as well as sewing-machines, and thus kill two birds with one stone?

LAWN-MAKING.

SOME SUGGESTIONS THAT MAY STRIKE HOME TO A GOOD MANY OF US.

MR. ROOT:—I was reading in an eastern paper awhile ago of an address delivered by a New England clergyman, in which he deplored the decline of rural life, setting forth the causes, and making suggestions for its remedy. How true this may be of New England, I am not able to say; but I think it does not apply to Southern Ohio, for there never was more intelligence among the farming classes, never such breadth of feeling, and never a keener appreciation of rural possibilities, than now. Nevertheless, country life lacks very much of reaching that Utopian excellence which a true country dweller longs to see. I do not think the cure lies wholly in the reasons given by our friend, but I am convinced that it lies, in some degree at least, in a careful improvement of our surroundings.

The dooryard should be made more beautiful, because this will make a homely house or an antiquated barn more beautiful. It is often puzzling to know just how to proceed. The best way is to proceed systematically, gauging one's plans by his means and time. Let the lawn be as large as possible. The battle is nearly won when a smooth velvety sward is obtained, which, since the advent of the lawn-mower, is possible to nearly every one. The lawn should have sufficient drainage to allow a pure atmosphere around the dwelling. Just after a heavy rain, note the low places before the water runs off, by setting a small stake; also note the high places in a similar way. Now begin to grade. Dead levels are not often desirable; but easy slopes, conforming somewhat to the surrounding country, and to the original plot, will usually have a more desirable effect. If earth is drawn from a distance, the surface should be covered with top soil. When this has been properly done it may be sown with a mixture of two parts blue grass with one of orchard and one of white clover. This mixture may be varied according to circumstances. I don't regard this as important as manuring the sward frequently; and if this is done, the grass will largely take care of itself. It is not best to invest too strongly in lawn-seed "mixtures," because they are too expensive, and inferior seeds are often sold in this way. It is as necessary to manure the lawn as it is to manure the meadow. The most convenient fertilizer for most of your readers is, perhaps, well-rotted stable manure. If you have a manure spreader, it will be just the thing for this purpose. If applied as early in the spring as possible, the rains will soon wash the substance down to the roots, leaving the strawy portion for a mulch for the dry months.

The next step is to consider walks and drives. Have plenty of walks. If you can't decide as to where they should be placed, take a piece of paper and lay off the different buildings and places which are to be reached by walks. Mark off the walks and drives too, if you need them, so that they will have a graceful curving appearance. Never sacrifice convenience for beauty, but blend both together as much as possible. Avoid senseless windings, such as making a walk considerably longer than necessary, for the purpose of having it curved. Walks may be constructed of flags, imitation of stone, bricks, gravel, or boards, the order indicating their relative desirability. If the lawn is large enough, it is necessary that drives be made. The rules for walks apply to these, and they should be made so that a team can turn and not have to go upon the grass.

Do not plant too many trees upon the lawn, because it will have a crowded appearance. Open spaces will make the lawn look larger. Plant trees in groups. The kind of trees to be planted may safely be left to one's judgment. I give the preference to the maple family, but would not confine myself to this alone. We should seek diversity. The despised sycamore is beautiful in winter. Evergreens should have a compact foliage, spreading out upon the ground, and narrowing toward the top like a cone.

If it is possible, by all means have a fountain in the lawn. Here is an unpretentious house, but the grass is closely clipped, and cheery maples stand around. Vines are entwining the old-timed veranda. There is a windmill with a tank just back of the house. This is the reason that you see a sparkling jet with dripping rocks and a continuous spray falling upon the water-plants. Minnows glisten in the clear water, and seem to be on friendly terms with some children playing near. The grass is kept green, although all around is scorched by the heat. The waste water is tiled to a watering trough down in the barnyard. The trough projects through the fence to the highway, sufficiently to allow the passers-by to freely satisfy their thirsty steeds. I tell you, Mr. Root, this place almost seemed to me like "the shadow of a great rock in a weary land."

Keep the lawn clipped when it needs it, whether it requires it twice a week or twice a month. Much more could be written, but I think if these simple directions are carried out one can not fail to have a neat and tasteful lawn; and having gone this far, personal taste may be exercised in making flower-beds, planting shrubbery, etc. J. R. D.

Jamestown, O., Dec. 15, 1887.

IMPROVING GARDEN VEGETABLES BY SELECTION.

THE MIKADO TOMATO.

FRIEND ROOT:—You and I honestly differ as to the value of this variety; but from our own standpoints we are doubtless both right. In this and many other markets, the Mikado would be almost unsalable. When good smooth tomatoes were selling at 30 cents, we managed to sell a few of the Mikado and other rough-fruited sorts at five cents per bushel; and what could not be sold rotted, for no one wanted them badly enough to take them as a gift. It is easy enough to see, however, that it might be valuable in your and other markets, where it could be sold.

The Turner Hybrid, which is thought by some to be identical with the Mikado, is, I think, much superior to it, in the fact that the fruit is not so rough. Both may be improved by careful selection; but it is my opinion that it will be found to be impossible to "breed out the wrinkles." This has been tried with the Trophy, Canada Victor, and other varieties; but, so far as I know, it has been only partially successful. Mr. Livingston, who has spent many years in improving the tomato, thinks that it is a waste of time to work with rough-fruited sorts, as he tried it for a long time and then gave it up. Your method will result in one good; viz., you will promote earliness by selecting the best and earliest fruit, and at the same time will make *some* improvement in its appearance. As a general thing, I would not advise those who use but a small quantity of seed to grow it themselves, as seed-growing is a business that requires much special knowledge. The tomato is an exception to the rule, however. Much of the tomato-seed sold is bought of canners who, of course, are not careful to save it from the first ripe fruit, nor from the finest specimens. To compete with this seed, those who grow the crop for the seed alone are obliged to follow the same careless methods; hence there is but little first-class tomato-seed in the market. With most vegetables, the small grower would find the proneness of varieties to cross quite an obstacle; but as varieties of tomatoes do not cross readily, he has no trouble in keeping them pure. He need have no fear, at least, that crosses will occur between a variety that he is growing and those of his neighbors. It is such an easy matter to save tomato-seed from the earliest and best specimens, that it will well repay any gardener to attend to it himself. W. J. GREEN.

Columbus, O., Dec., '887.

Friend Green, your letter is, in some respects, a good deal discouraging. By all means, give us the truth, even though it be discouraging. If we can not get rough tomatoes smooth by selection, how in the world can we do it? And if you can, please tell us how friend Livingston originated his Beauty and other tomatoes. It is true, the Beauty is a smoother and handsomer tomato, but with us it did not ripen nearly as early. The tomatoes are not as large, and it does not begin to produce the amount of fruit that the Mikado does. Our Mikado vines will give as many bushels of comparatively smooth and handsome tomatoes as the Beauty, and then ever so many bushels more of badly shaped ones. Do you really mean that good smooth tomatoes sold in Columbus during the past year for the low price of 30 cts. a bushel, or are you speaking of former years? For I shall begin to feel guilty if it transpires that nice tomatoes were only 30 cts. in Columbus, while we were getting $2 00 here in Medina. Of course, ours were retailed from house to house. Now, it may be that I am talking of Turner's Hybrid when I speak of the Mikado, for we raised plants from both; but they look so nearly alike, and were pronounced so nearly alike by many good authorities, that we decided to call them one and the same thing.* Now, to illustrate what an important matter this is, and how easily people may be led astray, I give you the following from one of the readers of GLEANINGS:

> *Dear Friend:*—I should very much like to get a small package of that selected tomato-seed; and knowing that you did not wish to dispose of it, I will offer you one dollar per ¼ ounce for it.
>
> FRANK B. WILD.
>
> Coopersville, Ottawa Co., Mich., Sept. 22, 1887.

I will send our friend one-fourth ounce of the seed; but after what you have said, I should not think of charging him a dollar for a quarter of an ounce.

While at the Michigan Agricultural College we were speaking of tomatoes and the rot. Prof. Bailey interested me greatly by saying that the pear tomatoes were, so far, free from rot; and when I at once suggested increasing their size by selection, he told me it had been done, and that the tomato advertised by Rawson and some others as the King Humbert was nothing more than a large pear or plum tomato. Now, the picture of the King Humbert represents tomatoes almost the shape of an egg, and as smooth and regular as an egg. On the strength of this we set out quite a number of plants. What do you think we got? Why, they were enlarged tomatoes; but instead of being round, like the pear, they were three-cornered, like a beechnut, and not only the most awkward in shape of any thing I ever saw in the way of tomatoes, but I do believe the color is about the most inferior and forbidding of any thing in the line of the tomato kind. Why, we thought at one time we should not be able to do any thing with them; but when I suggested offering them at 50 cents a bushel, while *nice* tomatoes brought $2.00, we finally started a large trade in them because of their cheapness. They are wonderfully productive, and on this account I don't know but that we shall try them another year. But there was not a single smooth round tomato in the whole lot, nor even one that looked any thing like the picture. It seems to me that the man who sends out a catalogue with such a statement as appeared in regard to the King Humbert, when the real facts are as I have stated above, damages himself more than he knows. If I should make such a blunder as the above, I should feel like taking space in my next catalogue for making a downright handsome apology. What does it amount to, supposing you do sell a great lot of seeds at ten cents a packet, providing every purchaser decides you are a swindler when his plants begin to bear? May be I am too severe, but I should like to know if any of the friends have raised any such King Humberts as are pictured in the catalogues. Now, friend Green, according to your statements, the King Humbert can never be made smooth, even if it is a wonderful bearer, and absolutely proof against rot.

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*The way Maule procured his Turner's Hybrid, is described in his price list as follows: "Last spring, hearing of just half an ounce of seed taken from selected specimens of the Turner Hybrid, all weighing over 1 lb., I paid $50 for it, or at the rate of $1600 per lb."

Now, in a wider sense an important matter comes in right here. We have been told that Henderson produced the White Plume celery by selecting, year after year, plants that had a tendency to be white; and we have been told that it is now in the power of the stock-breeder and horticulturist to get such an animal or such fruit as he wants, if he has the patience to follow it up. A few days ago I wanted a new bobsled, and our wagonmaker sent me one that was altogether too frail and light for my business. I wanted it for drawing logs. He finally said he could make one to order, just exactly as I wanted it. Well, a good many of us have begun to think that a horse or a cow, or a strawberry or a cabbage, if you will excuse my illustrations, can be built to order for any special purpose. Just now I want a very small, quick-heading cabbage purposely to head under glass, in a greenhouse. Can it be furnished? In speaking of the King Humbert tomato, I have the impression that the originator made rather a botch of his work of years. He gave us a larger tomato, and one free from rot; but in his selection of special fruits for seed he paid no attention to form and color, but trained a rather beautiful-shaped pear tomato into an awkward fruit with an ungainly shape and brindle color. A good many are at work now on improved fruits and vegetables. Now, for instance, is it not possible for us to take this ungainly Humbert and make it of handsome shape and handsome color? or had we better go back to first principles, and start out again with the pear? You see, we are, a good many of us, in danger of wasting years in a vain pursuit. I shall be very glad indeed to have Prof. Bailey, of the Agricultural College, Mich., give us his views in regard to this matter, for he has already done a great work on tomatoes. The particulars of this work are given in their Bulletin No. 31, just out. They have there procured every variety of tomato that is advertised either in the United States or Europe, amounting to 170 in all, and have, after much pains and expense, decided that all but about 57 of them are so nearly identical they may as well be called one and the same thing.

FLOATING APIARY.

FOUL BROOD; ALFALFA; COMB VS. EXTRACTED HONEY.

NOT long since, Wm. Muth-Rasmussen, of Independence, Cal., wrote me as follows:

> From recent articles of yours in the bee-papers, I thought you were contemplating a "floating apiary" on the Mississippi River, but it now appears that you have given up the project. Why is this?
>
> Yes, alfalfa is an excellent honey-plant, and is our main dependence here. The cut of alfalfa on the back cover of Heddon's book is a very good representation. The flowers are blue and purple in color.
>
> The honey-range here is quite limited, and fully taken up, as nearly all the farmers keep more or less bees. Independence is situated in a long narrow valley between the Sierra Nevada and the Inyo range of mountains. The country is sparsely settled, and our local honey-market amounts to almost nothing.
>
> I am now changing from extracted to comb honey, as I find a readier sale for the latter. The price, however, is low—by far too low to be satisfactorily remunerative. I am not farming, but devote all my time to bee culture.
>
> Yes, foul brood was one of the reasons why I left the Southern part of this State and came to this place. I have now been here about seven years.

I, the writer, visited Southern California in April, 1875, for the purpose of engaging in bee culture there; and during that visit he had the pleasure of making the acquaintance of friend Muth-Rasmussen. Mr. M. was, at that date, in charge of a large apiary a few miles north of Los Angeles, and close by Passadena, but which, in 1875, was known as Indiana Colony — only a few scattering houses. Owing to a heavy frost, and some ice, during the time of my visit, which destroyed the sages for that season, the main honey dependence then of Southern California, I concluded not to invest in bees, and, in June following, returned to my present home. At the time of my visit, foul brood was doing a deal of mischief in Southern California, and, as will be seen, was one of the principal reasons why friend M. quit the bee-business in the neighborhood of Los Angeles.

For the life of me I can not imagine how any one should get the impression that I ever desired to engage in a floating-apiary enterprise. C. O. Perrine demonstrated some of the foolishness of a floating apiary on the Mississippi River. He held several interviews with me about that enterprise, before he went into it, and wanted me to assist him; but I gave him no encouragement. The fact was, I had no faith in it in the way he proposed to carry it on. The project I did have faith in at that time, and still have, is the shipping of bees by rail from South to North, and *vice versa*, when conducted properly. This has, in my judgment, never yet been done in the United States.

There seems to be a difference of opinion, based upon experience, about alfalfa being a good honey-plant. One reason, perhaps, why it is worth but little for honey purposes is because, if wanted for hay, it should, and perhaps must, be cut as soon as it comes into bloom. If kept for seed, then it might supply us with considerable honey. From what is known of alfalfa, I am satisfied that it can now be grown with success, not only in the Southern but almost anywhere in the Northern States; that it stands the winters well, and will give from three to four crops of hay per season. This statement may surprise some of the readers of our bee-papers; but if any doubt exists, I think I am prepared to remove it.

Friend M., in turning your attention exclusively to comb honey, you are at last on the right track; and it would be a good idea if many others would do likewise. Extracted honey has done more harm than many imagine. As the majority of producers voluntarily put down the retail price on extracted honey to one-half or one-third the price they asked for comb honey, it has been the means of bringing the price of the latter down, down, down, until it has, in many cases, almost reached the level of the former. This being the case, there should now be a sudden halt all along the line, so the blunder may at once be corrected. In short, no one should produce extracted honey for the market unless he has the knowledge, the ability, and the disposition to sell it at a proper price, which should not, as a rule, be less than the same grade of honey would have been worth in small sections. Reader, please wake up and tell us what you have to say in reply to this. M. M. BALDRIDGE.

St. Charles, Ill., Dec., 1887.

Friend B., it seems to me that demand and supply must have a good deal to do with the comparative difference in prices of extracted and comb honey, as, indeed, demand and supply must have much to do with the prices of honey in general. Other things come in, however, to greatly affect the price. The large prices you have received for both comb and extracted honey are owing, as I have understood it, to the fact that you handle nothing but the gilt-edge, or extra nice, of either kind. But even after one has this extra gilt-edge honey, he must have judgment and wisdom, energy and experience, to make the most of it. I believe you have all these qualities. Notwithstanding all this, I think that, in a good season, you will often find yourself helpless when both comb and extracted honey are going "down, down, down." It is true, you can hold on to the crop just as we held on to our carload of California honey and our big stock of *glassed* sections, until a season of general scarcity occurs; but the latter is rather expensive business, and it is also a risky one. Honey-producing is so new an industry, comparatively, that none of us knew exactly where prices were going to settle; and, to tell the truth, we don't know exactly yet; but I think we know a little better than we did a year ago. We know now, that, when honey becomes scarce, there are a good many who will have it, even if the price goes away up; and in this respect it is like potatoes and cabbages; and I feel a good deal encouraged in regard to honey becoming a great staple.—Alfalfa will grow very well here in our Medina clay soil, as I have proved by my small patches; but I never saw many bees at work on it. —In regard to a floating apiary, I think an experienced bee-man could make it pay by giving his time for a few years, by testing the matter on a small scale before he goes into it largely. I feel sure, however, it will never do to move the boat while the bees are flying; and I am afraid it would not answer very well to confine them to their hives. While they are gathering honey they should be located in a very quiet piece of water; and even then a good many heavily laden bees will probably fall into the water and be lost; but as bees have done quite well in localities close up to the water, I think they will do well in a boat. By keeping them on the boat all the while, you can get rid of the disagreeable and laborious operation of loading and unloading. When the boat is at anchor it should be fastened so it can not move, and it will never do to crowd so many hives together as did friend Perrine. Our successful house-apiaries will indicate just about how many can be worked safely on board a boat. There is not a doubt, as it seems to me, but that an experienced man could make it a success; but at the same time, I feel that it is quite likely he would get tired of it, even if it did pay, just as many have become tired of their house-apiaries, after they have been at great expense to get them started.

HERMAPHRODITES.

A VERY CURIOUS BEE.

HERMAPHRODITES, when real, combine both sexes in the same individual. That is, the animal is male and female at the same time. This peculiarity is not rare, even among the higher plants. Almost every plant that meets our gaze has both stamens and pistil, usually united in the same flower. Often, as seen in the walnut, hickory, oak, and chestnut, the same plant or tree bears both stamens or pistils, but they are separate, or not combined in one bloom. Such plants are called monœcious—from the Greek, meaning "in one household." True hermaphrodites, then, among animals, are quite analogous to monœcious plants. Indeed, the term monœcious is sometimes used to designate hermaphrodites among animals. Some plants, like our willows and poplars, bear the male flowers or organs on one plant, and the female on another. Thus every observing bee-keeper has noticed his bees on the willows, alder, or poplars, in early spring, and noticed that, while on certain trees—the pistillate—they collect only nectar, on other trees—the staminate—they are gathering only pollen. Such plants are called diœcious. This term is also used in describing animals, and is equivalent to bi-sexual. Bi-sexual, or diœcious animals, then—which include all of the highest branch of animals, have the sexes in different individuals. Nearly all the lower groups of animals possess hermaphrodites, or monœcious forms. Even worms and gasteropods are not exceptions. Our angleworms and snails are true hermaphrodites. Each angleworm and snail has both male and female organs.

All vertebrates, or back-bone animals, and all true insects, are bi-sexual so far as scientists have yet observed. True, so-called hermaphrodites exist among insects, vertebrates, and even mammals; yet all such animals are really true males or true females, though some of their organs or characteristics seem to denote the opposite sex. Even the human family has furnished such examples. Such hermaphrodites among bees are not very uncommon. I have several bees in my possession which, while they have the head and thorax of the worker, have the abdomen of the drone, or *vice versa.* Usually, if not always, the real sex of such bees is denoted by the abdomen. If the abdomen is that of male, the testes, or male organs, will be present; if that of a worker, the abortive ovaries may be discovered by a careful dissection.

A VERY CURIOUS BEE.

The bee sent me through you by T. H. Kloer, Terre Haute, Ind., is a most wonderful and interesting specimen. Here the apparent hermaphroditism is bilateral. The right side is a drone, to all appearance, while the left is as distinctly worker. The right eye runs up to the middle, crowding the right simple eye forward, while on the left the worker eye is normal in size, position, and pubescence. The right jaw is like a drone's in the little notch, while the left is distinctly that of a worker. The same is true of the wings; the right one is broader than the left; nor do the legs form an exception. The pollen-gathering hairs are thick on the left legs, while the right ones are in every respect dronelike. The difference is very marked in the posterior legs. The left hind leg shows the pollen-basket with its rim of hairs, and the beautiful combs on the inside; while the right leg is a simple drone's leg and nothing more. As soon as time will permit I will have drawings made of all these parts. It would be very interesting to dissect this unique bee, and see how its internal organism is constructed; but it is so rare and valuable a specimen that it seems a pity to mutilate it. Mr. K. says, though he could see the sting, the bee showed no inclination to use this organ, even though he pinched her. I know of one case where a queen was so abnormal that many of her bees were peculiar in exhibiting the so-called hermaphroditism. It is to be hoped that Mr. K. will watch this colony closely for more bees denoting this new and more strange modification.

This case is peculiarly interesting as bearing on the Dzierzon theory. Why should half of the egg develop into a drone, exteriorly, at least, while the other half became a worker? Is it probably true, that several sperm-cells usually enter the micropyle of the egg to form a worker, and that in this case only one, perhaps, entered, and so the egg could become worker only in part? Even this suggestion is far from being satisfactory, in view of the method of development in the animal egg. We know that the egg-segments, and that the cells thus formed, unite to form the primitive animal. Thus it is difficult to see how any such partial impregnation could result in hermaphroditism. I wish to praise Mr. K.'s keenness of observation. How few of us look closely enough to discover such a rarity as this wonderful bee! A. J. COOK.

Agricultural College, Mich.

AN AUSTRALIAN LETTER.

THE RAPIDLY INCREASING RESOURCES OF THE COUNTRY; A LAND FOR BEES, ETC.

SINCE writing you last, I have packed up my traps and removed from the colony of South Australia to this, the adjoining colony. The distance of the capitals from each other (Adelaide and Melbourne) is 500 miles; the route is either by water or rail—40 hours in one case and 18 in the other. South Australia, although larger in area, is by no means so populous as Victoria, and on that account is somewhat less advanced. Their populations are, relatively, 1,010,000 to 361,000. Victoria, as some of your readers may know, is rich in gold, the discovery of which some 40 years since attracted a large and varied population from all parts of the world, answering to the corresponding events which took place in California.

The excitement of those times is now fast becoming legendary, and the colony has settled down to make the most of the good gifts which Providence has lavished upon it in other ways than gold. While South Australia has been passing through a severe time of financial depression, which I suppose is inseparable from young colonies with large borrowing powers and still larger wants, Victoria has fast been pushing ahead, developing her resources, opening up every inch of country by rail and otherwise, attracting capital from all parts, increasing her population, and is now in a state of "goaheadiness" which is a pleasure to see. Main frontages in Melbourne have recently brought up to £1000 per foot, which speaks volumes. You will not be surprised that, in view of these circumstances, I made up my mind to shift camp, which I would have done sooner had I been able, seeing, moreover, that Victoria enjoys a strong protective policy which helps and fosters young industries. This means that I, as a small manufacturer, am placed on more equal terms with you, a large one, to enable me to compete while establishing myself; but possibly you don't see it in the same light. One of our daily papers, in a recent article, stated that the ordinary churchman's ideal of paradise was "Peace on earth and trade with all mankind," which, of course, represents importers and exporters.

Finding that I could not dispose of my machinery except at heavy loss in Adelaide, I resolved to pack it up, trans-ship to Melbourne, pay the 25% duty upon it upon entering Victoria, and re-erect it when I could find a place suitable, which was no easy task; but it being overcome, I then returned to Adelaide to look after my little family there, and some 60 colonies of bees, which were making rapid preparation for the approaching spring. These I packed by inserting half-inch slips of wood between the end-bars, and wedging securely together, taking off covers and bottom-boards, and covering with two thicknesses of cheese-cloth. They had to be carted over a rough road 9 miles to the port, and placed on board a steamer, which work I superintended myself, as most of the colonies were very large, and preparing for swarming. After a pleasant voyage I got them safely landed on Melbourne wharf, ran the gauntlet of the customs, secured vans, and carted them 8 miles to the spot from which I now write. I lost but one colony in transit, which, by some means, smothered. The others lost very heavily in bees, and were thrown back a good deal, but have since increased at a fair rate, so that at the present time I count over 100 colonies, with every prospect of there being many more, although I am checking swarming as much as lies in my power.

I have been heartily welcomed by all interested in bee culture, who were glad to have an opportunity to supply their wants, and have every prospect of doing well, as I and my business become known. The honey yield is good, though little is yet known of the frame hive, and the newspapers still refer to matters pertaining thereto as a novelty. Here, as in all these colonies, the honey harvest is to a great extent variable—one good yield and one light one; but the good one *is* a good one. I find that the box-men calculate 80 to 100 hives of bees equal to 5 to 7 tons of honey, and this without any care bestowed upon them other than taking the honey, and this from a degenerate race of blacks. What may be accomplished under better management, and with better bees, is yet to be seen. It is my intention to send 50 good colonies into the country for the season now opening, and see what I can do. I fear I live too near town to secure any harvest, although up to the present my bees have been booming in spite of an exceptionally wet spring.

Honey brings 4½ to 6 in bulk; 1-lb. sections, 9 to 10 wholesale, and no end to the demand at the present time, or likely to be for some time to come.

One of your readers in Texas wrote me, since reading my previous contribution, asking information respecting these colonies; but his letter, arriving just at the time that I was on the move, was mislaid. For his information, and to others through your medium, I should like to say a few words which may be useful.

SOIL, CLIMATE, AND WAGES PER DAY.

Australia, as a whole, is a land blessed with a fertile soil and a temperate climate. The northern parts tend toward the tropical, but in no part is the cold of winter very severe. Snow is seen only in the heart of the mountainous country to any extent, so that the bee-master has no trouble or losses in wintering. I ran my bees through last winter without even a mat of any sort on top of the frames, and they seemed comfortable enough, and most of the queens continued laying, or ceased for only a short time. The country is divided into colonies, each under a separate government, framing its own laws for internal economy, and each having a governor representing our much-loved Queen, to whom we are, as a people, extremely loyal. As pointed out, there is no reciprocity of products, and a good deal of unspoken jealousy exists between the colonies; but it is probable that, before many years elapse, we shall enjoy a federation of the whole colonies for mutual benefit. To any man with a trade at his command, these colonies offer a wide scope. The small capitalist starting in business has every help a paternal government can afford him. The settler has the most liberal terms offered, and, speaking generally, no man need remain poor who is willing to work and *save*. Now, I will venture to say that you have all these advantages, and more, in the States, except, perhaps, in the matter of temperature. The possibilities of life lie within the man, not in external circumstances. Man is always superior to his surroundings, and may rise above his fellows if he will take steps to differ from his fellows and SAVE. The average wages paid to artisans is from 10 to 12 shillings (or from $2 25 to $3.00) a day — 48 hours' work to the week. Laborers get 7 to 8 shillings (or $1.75 to $2.00). Men brought up to practical farm work are in demand at all times, and may soon become their own masters. I have seen men by scores become rich during the past 20 years by steady work, and rise with the colonies; but, alas! I have known hundreds, surrounded with every necessary opportunity, go down, hopelessly down, never more to rise, through that curse of all curses, drink — drunkards, body and soul, before they were aware of it themselves, because, as young men, they would do as their fellows did, and not dare to be singular.

GLEANINGS AND ITS HOME ARTICLES.

My wife says, "Oh that we had a few men such as friend Terry and many others (whose contributions are so delightful to read), in our midst, who do what lies in their power to lighten woman's lot, and exercise (blessed word!) a sympathy for woman's trials!" Of course, this joggles me up a bit, and I am very apt to hear a quotation from GLEANINGS at times if I am remiss in fixing up that bench or putting up those hooks, etc. What always strikes me in reading American literature is the apparent home life and fixity of home and surroundings which is much wanting in these colonies. Here men, under liberal laws, take up land either for speculative purposes or to drain its resources in 6 or 7 years, and then sell, with only here and there a man willing to make a permanent homestead for his family—need I again repeat, these are the men who now are comfortable? Cold and severe winters have a tendency to create a home feeling, and enforce attention to many matters which go by default in more genial climes. This is the only way I can account for the difference. It is with great pleasure we open and read GLEANINGS when it comes to hand, and I think it is about the best-read publication which comes into the house.

You will remember that, by a short act of parliament, the government of South Australia set apart Kangaroo Island as a spot for breeding Ligurians only. We are now about to reap the benefit of this, as one of our most experienced bee-masters, Mr. Fiebig, is now busy packing his first orders from there; and as he has had many years' experience in Germany, as well as here, we are pretty sure of getting the best-bred bees procurable, at a medium price, to commence with.

Now, I think for the present I have said enough of "myself and my neighbors." We are all looking anxiously to hear that you have conquered and stamped out foul brood. We all know him here to our sorrow. LEONARD T. CHAMBERS.

Middle Brighton, Aus., Nov. 6, 1887.

Friend C., I am very glad indeed you gave me that text. I did not know that any thing could be put in so few words to meet my views so exactly. "Peace on earth, and *trade* with all mankind" is exactly my motto. I know it would distress some, especially at the commencement; but who is there who could not bear losses for a little time, for the sake of seeing all mankind helped? I confess that I am comparatively ignorant in regard to this matter of duties and customs; but I am sure the world would be benefited in the end by giving all an equal chance; that is, so far as buying and selling are concerned. In other words, it always gives me a thrill of pleasure to have an opportunity of calling every human being brother, no matter whether he is black or white, rich or poor, just over the garden fence, or clear over on the other side of the world. God meant us to be brothers; and the sooner we accede to his wishes and intentions, the quicker will heaven come here on earth. Many thanks for your kind letter, giving us so many glimpses of human life away off in Australia.

SELLING OUT AN APIARY.

QUITTING THE BUSINESS; HOW WE DID IT AT A SACRIFICE.

LAST spring I removed to a new charge, 400 miles from my former one. While I desire always to keep a few bees, for various reasons it seemed best not to remove my apiary here. It consisted of about 100 colonies with empty hives, combs, and apparatus necessary to manage such an apiary. My location was good for honey, but almost every year I lost many colonies during the winter. I have no doubt there were persons desiring to engage in bee-keeping who would have bought me out if I could have found them; but they could not be found. I found one person who wished to engage in the business, but he had had no experience with bees. To him I sold 47 colonies at $2.00 each, also some supplies. The rest I sold at retail to farmers and others, receiving for none over $2.50 a colony. I considered my apiary worth to me $1000, and would have considered it cheap at $600; but I received only a little over $200 for it, therefore bees do not prove very valuable property when you come to sell out.

To any person wishing to sell an apiary, I would say: If possible, sell out your entire outfit to some person desiring to engage in the business. If you have to retail your bees to farmers you will not realize more for them than for black bees in box hives. If you can not find such a purchaser, perhaps you can secure some person who has some knowledge of bees to take charge of your apiary, and you may be able to give some little attention to it yourself; and by receiving a share of the honey, you may, in a few years, realize more than if you sold all for a mere trifle. Perhaps the easiest method to quit the business would be to wait until the end of the season, then brimstone the bees, extract the honey, reduce the combs to wax, and make kindling-wood of the hives. I am certain, if I had taken that method I should have received more money than I did, but it seemed too cruel. I never thought of adopting it. W. D. RALSTON.

Morea, Ill.

Friend R., your statement of facts seems a little sad, but I know there is a good deal of truth in it, in a good many localities. Now, would it not have paid you better to offer the bees at a very low price, either in your local papers or in the bee-journals? Surely, it must pay you better than to brimstone them.

REDEEMING FEATURES OF A POOR SEASON.

DOES REMOVING THE QUEEN IN THE HEIGHT OF THE SEASON STOP THE HONEY?

E. FRANCE, on page 896, Dec. No., closes his interesting communication with "When you have a big working force, take away the queen." How many tyros, even in bee culture, would not see the consequences at a glance—not only a cure for swarming, but a cessation from honey-making. Why does a man of his experience put clay on our eyes, when at best we can not see clearly?

I notice the great mass of writers give one testimony in regard to yield of honey and scarcity of swarms for the past bee season. This so perfectly agreed with our experience that we accepted the situation to call last year a failure, and to prepare more vigorously for the new year, on the principle that "lightning never strikes twice in the same place." If we have had, through a combination of circumstances, a season of almost perfect failure, we may hope and expect the combination to be different the coming year; and generally, as one extreme follows another, we may look for an unusually prosperous bee-year, not only in bees and honey, but in price, caused by the drainage of the market by this year's failure.

During July our bees had managed slowly to fill and cap a few boxes, and nearly fill several more. By the last of August and early in September much of this surplus had been consumed by the makers, and we began to consider ways and means to carry through a few colonies to build a new business on the old capital. Having settled down to this faith we gave little heed to their workings, only now and then lifting the hives, and thereby judging nothing was doing.

Early in December, having occasion to change location of hives we found most of them greatly improved in weight; and on removing the surplus boxes we found about 50 lbs. of late-made honey, perhaps mostly gathered in October, and from a buckwheat patch I sowed very late. It was also flavored with the late fall flowers with which our town abounds.

Our 17 colonies, we had estimated, would consume 200 lbs. of sugar to carry them through. We now find them self-sustaining, only 2 or 3 requiring assistance, and that abundantly furnished by the surplus of other hives.

We are in the southeast corner of Virginia, with a climate requiring no protection for bees other than their good summer quarters. I would suggest no change here, except an absorbent to cover the frames and prevent too much moisture, which we sometimes find in the hives. My practice is to place three hives on a stand 6 feet long and one foot high, and leave 6 to 8 feet between the stands. One grape-arbor, or other shade, will cover the 3 hives as well as one; and there is no fear of confusion in the bees finding their own home.

Suffolk, Va., Dec. 29, 1887. J. C. FRISBEE.

Friend F., I used to think strange that some writers should recommend removing the queen during the height of the honey-flow; for I have often seen a colony that was working vigorously, slack right up when the queen was taken away. A customer once wanted a select tested queen to take home with him. The only one in the apiary was one in a colony working heavily in a hive covered with sections. In consideration of a good price I took her out; but the honey stopped at once, while other colonies continued to pile it right in. By the time they had a new laying queen the yield was nearly over, and I estimated the loss of honey was about as much as the value of the queen. Had I kept her in the hive I should have had my honey and my queen too. Well, now, there seems to be a difference in colonies in this respect. I have since then seen a strong colony go right on storing honey (which was almost entirely stored in the sections) after the queen was removed. Perhaps taking the queen away when they are starting cells and making preparations for swarming might have less effect in stopping the yield. We should be glad to hear from some of our veterans in regard to this matter.

A FACTORY EXPRESSLY FOR CANNING HONEY.

FRIEND CHRISTIE'S INDUSTRY.

WE have for several years been printing great numbers of honey-labels for Mr. Aug. Christie, of Smithland, Woodbury Co., Iowa; but we never knew exactly what he did with them all until we found the following in the Smithland *Exponent*:

> Few people are aware of the importance of the honey business in this section, or how much of an establishment the Smithland apiary and canning-house, owned by Aug. Christie, has become. The reporter was not aware of it either until he wandered up there one day this week on a tour of inspection. He found the gentlemanly proprietor busy at work, but he kindly dropped every thing to show us around and to explain the process of canning. Mr. Christie owns five apiaries, with from five to six hundred stands. All the honey from these apiaries is brought to his Smithland canning-house to be put up for the market. This is a more extensive job than one would think, and the process is more complicated.
>
> The honey, when extracted from the comb, is barreled up and taken to the storehouse, where it is kept until the time for canning begins, which is generally about the first of December. The building where the canning is done is a substantial brick structure, 22×30 feet, and two stories high, with an ell for an engine-room. The arrangements are such that, when the honey is brought in, it can be unloaded from the wagons on a level with the upper story, and the barrels rolled in. Then the barrels are placed on end, the heads taken out, and the honey emptied into a tank holding about 100 gallons. This tank is made of boiler iron, and heated to a moderate degree by steam. From this tank the honey passes through a lead pipe which is regulated by a stop-cock, into a reservoir with a three-barrel capacity. From this reservoir it passes through another pipe into a steam-chest. This pipe is made of block tin, and is made in a spiral form, so that the honey may be kept in motion; for the honey, if it remained in one place too long, would be overheated, and a little too much heating spoils it. In the chest it is heated to the required temperature, and drawn off into cans, the heat preventing its granulating.
>
> The capacity of this apparatus is two barrels per hour. In addition to this there is a steam-chest in which cans are placed; and the steam being let on, the honey melts and runs into the same tank in which the barreled honey was placed. This makes the whole capacity of the factory three barrels per hour. The honey is drawn off in cans varying from one to sixty pounds each, but the largest demand is for the one-pound cans.
>
> An engine of six-horse power drives the machinery, and furnishes the steam for heating purposes. Mr. Christie travels during the greater part of the year, selling to dealers in various parts of the country.

Now, we should like to inquire of friend C., if, with the above apparatus, he succeeds in putting up his honey in such a way that it remains liquid year in and year out. The theory has been, that, if honey is sealed up and heated to just the proper temperature, it will never candy until the seal is broken; and friend C. can probably tell us whether it works in practice.

A WARNING.

FOUL BROOD IN AUSTRALIA; ITS WIDESPREAD AND DESTRUCTIVE WORK.

FOUL brood has, unfortunately, obtained so firm a foothold in this colony that there is scarcely an apiary — in this district at any rate—that is free from the disease now, or has not previously suffered. To bee-keepers, the outlook is so alarming that they are afraid to increase their colonies, and there will naturally be a reluctance to invest capital in the growing industry. Unless some combined action be taken to check the scourge, foul brood will become master of the situation. Accordingly, special meetings of the S. A. Bee-keepers' Association, and of the Mt. Barker Bee-keepers' Association have recently been held to discuss the question; and in both cases it was unanimously resolved that legislative action was required. Dr. Cockburn, M. P., President of the first-named association, is now conducting a bill through our Parliament, making it an offense to keep diseased bees, combs, hives, etc., on the premises, and imposing a penalty of £1 to £10. Provision is made for government inspection, but the details of the bill are not in my possession.

The majority of bee-keepers strongly favor Muth's method of eradicating the disease; that is to say, transferring the bees into a clean hive with starters, and feeding medicated syrup. This has been uniformly successful here, whilst the numerous other methods, including spraying, feeding, etc., and the host of nostrums, such as coffee, camphor, eucalyptus oil, etc., have resulted in failure. The disease may be checked for a time; but a permanent cure seems unattainable without the entire removal of the infected combs, as prescribed by Muth. We sympathize with you in your fight against foul brood, and are watching the result of your efforts with much interest. C. F. CLOUGH.

Mt. Barker, South Australia, Nov. 13, 1887.

The problem of what to do with the disease with you is indeed a serious one, now that it has got such a foothold. Your letter is not the first one we have had from your country, telling of its terrible ravages. Most severe measures should be taken against its further progress. You are probably on the right track, both as to legislative action and method of cure. Our experience has taught us that the colony should be put into clean hives on frames of foundation, and then given some antiseptic. Your letter should prove to be a warning to bee-keepers in America, though it is a little strange why it has gotten such a start with you.

Here is something further on the subject, which we take from the Australian *Bee Journal* of Dec. 1:

> In almost every district, from one end of the Australian colonies to the other, that scourge of the bee-keeping industry, foul brood, exists. Eight years ago it was known to be in only a very few widely separated districts, and clean healthy colonies were then the rule, whereas they are the exception now. The disease has spread to an alarming extent during the past few years; thousands of colonies have perished, and some districts have become so infected with it that it is only with the greatest vigilance and perseverance that bee-keeping even on a small scale can be carried on at all in them. Very few apiaries, indeed, can boast of being entirely free from the disease at the present time. It is now a matter of so serious a nature, in fact, that, unless some thoroughgoing steps are taken very shortly to stamp out the pest, the bee-keeping industry in these colonies will soon become a matter of history. Hundreds of people have been compelled to give up keeping bees, at considerable loss to themselves, owing to their inability to conquer the enemy, and many who looked to honey production as a means of livelihood, or to augment their small means, have been sadly disappointed by their bees dying off. The experiences of Mr. G. Stevenson and "Lamh dearg Erin," so graphically described by them in our last and present issues, are similar to that of hundreds of others, and there are few indeed who would not soon become disheartened and give in under similar circumstances.

HEADS OF GRAIN

FROM DIFFERENT FIELDS.

WELL FIXED FOR FISH CULTURE.

I WAS glad to see in your journal something about carp culture, as I am in that business also. I have 5 ponds, and but one is stocked. It is a pond of about 2 acres. A year ago last November I put 208 German carp in, and drained it this last October, and found only 150. The ducks were on the pond almost all the time. We shot some of them and cut them open. We found some of the carp in them. The longest, when put in, was about 3 inches long; and when I drained the pond many were 22 inches, weighing from 3 to 3½ lbs. The pond (stocked) is from 2 to 7 feet deep. You see I have the carp fever, for this month I sent for and received 270 more carp, many of which were 6 inches long when received. I am very proud of them. These I put in a separate pond, 90 yards long, 30 ft. wide, and 4 ft. deep. I have perfect control of my ponds, for they are all on bench land above high-water mark. The water is supplied from my carding-machine race which is raised 13 ft. high to run a turbine water-wheel for the woolen-mill. I can draw all the water out of my ponds, and then fill them again at pleasure. I have an abundance of water for the business. I use the water four times—from the first to the second, from the second to the third, and forced by a hydraulic ram from the third to the fifth. The ram throws 16 gallons a minute. All who have looked at my ponds say that I have as fine a location as there is in Missouri. If there is money in the fish-business, I can enlarge my ponds to 10, 15, 20, or 40 acres, just in proportion to the increase and as we have need. In September last we killed a 20-inch carp. We cut its throat. It bled freely, and five of us partook of it to our satisfaction. All pronounced it very good.

L. J. BLANKENSHIP.

Corsicana, Mo., Dec. 31, 1887.

It seems to me, friend B., that the duck-business does not work very well in connection with the fish-business. The great trouble with carp-raising seems to be that fish, fowl, and reptile seem to work in concert to exterminate them; that is, they are so good that every thing in this line wants to eat them up.

DOES IT REQUIRE MORE STORES TO WINTER IN THE SOUTH THAN IN THE NORTH?

In this locality there is hardly a week when bees can not have a fly, and therefore are more restless. Will they not need more supplies to winter on than when they are quieter? Is there any danger of inducing robbing by feeding sugar syrup out of the hives in a water-jar, as shown in A B C? By feeding a thin syrup in this way as soon as the weather is settled, could not colonies be built up rapidly?

H. R. TALCOTT.

Birmingham, Ala., Nov. 23, 1887.

I believe, friend T., that this question has been fully answered. Perhaps several circumstances would have to be taken into consideration, but I do believe that bees consume less stores when they settle down into their semi-dormant state, and remain so for months together. Possibly they do not come out as strong in the spring, but I am inclined to think it would be more profitable not to have very much brood-rearing until about the first of March.

THE MATTER OF STATISTICS.

The plan as proposed in GLEANINGS, page 885, by Prof. Cook, for gathering and publishing statistics in regard to the honey crop, is, I think, a most excellent one, and one that the editor of GLEANINGS should not fail to appropriate, and I would suggest, as my humble opinion, that it would be one of the most valuable features contained in GLEANINGS; profitable and valuable alike to the honey-producer and the dealers in bees and queens throughout the United States. I hope soon to see this progressive feature a fixture of GLEANINGS. Thanks to Prof. Cook for the suggestion. Consider your humble servant free of all cost, should you desire to add this feature to GLEANINGS, so far as Eastern North Carolina is concerned.

ABBOTT L. SWINSON.

Goldsboro, N. C., Dec. 12, 1887.

Many thanks, friend S. We shall probably avail ourselves of your kind offer of reports from your vicinity.

BUCKWHEAT PANCAKES AND HONEY.

Noticing your comment in GLEANINGS on buckwheat cakes and honey as compared with maple molasses, please let me tell how we get something a little extra, and also how to get rid of broken and partly filled sections of honey. Take all the partly filled sections, or any second-class comb honey (with no bee-bread), and slowly melt in any convenient tin or copper vessel. When it is all melted, set it away until cold, then take off the wax, and your honey is left clear and nice, and will need no straining unless you have some bee-bread in it. In such cases, warm the honey once more, and strain. This process gives the honey a little different and pleasant flavor, and we think it the best of any sweets on pancakes. N. E. DOANE.

Jennings Ordinary, Va., Dec. 28, 1887.

HOW TO HARVEST BUCKWHEAT, AND NOT WASTE THE SEED.

I send my plan of saving the buckwheat seed, and I know no better way. When ready for cutting I take my old-fashioned scythe and cradle, and cut and throw two and sometimes three swaths in one bunch. We call this bunching. I do this when the buckwheat is damp, early in the morning, or on damp days, when the wheat will not rattle off. When I finish cutting I let it lie, say two or sometimes four or five days, until dry; then I take a team and wagon, with a good tight body on the wagon, and drive in the field where the buckwheat is, with one man in the wagon and another on the ground to fork up the bunches. They are lifted into the wagon very carefully. In the mean time the man in the wagon flails the wheat out. It takes only a very few strokes with a 4 tined fork to take all of the grains out. I then dump the straw overboard and leave it in the field, then clean out the grain with a fanning-mill. In this way of cleaning and drying, the grain will do to put in the bin, and will not spoil in the bulk. S. LANGFORD.

Buckskin, Ind.

Your suggestions are excellent, friend L.; but I don't think that we ever found our buckwheat so dry that we could thrash it with a four-tined fork. We have lately thrashed our buckwheat, pretty much in the way you indicate, with a flail. In spite of us, however, more or less is always wasted on the ground.

ASTER AS A HONEY-PLANT; SHOULD IT BE CULTIVATED?

Will you please tell me where I can get some aster-seed, and what it costs? Is it as good for honey as the Chapman plant? There are but very few who keep bees in Western Nebraska, it being a newly settled country. I was one of the first settlers in this county (Red Willow). I came here fifteen years ago. There were thousands of Buffalo here then.

A HOUSE MADE OF SODS, FOR WINTERING BEES.

I have now 33 good strong colonies of Italian bees. I have a part of them in a sod house all above ground. It has not been colder than 45° in my bee-house this winter. Those I have outdoors have been flying to-day. Comb honey in one-pound sections is worth 25 cents here. I think a great deal of GLEANINGS. R. F. LOOMIS.

Indianola, Neb., Dec. 24, 1887.

Friend L., I do not believe that the aster-plant would yield as much honey as the Chapman honey-plant; for the amount of honey yielded is comparatively small, and it requires acres of it to make any show at all in the honey-yield. I am sure it would not pay to cultivate it for the honey; and even if it would, the only safe way to do is to first cultivate a small bed of it. If it pleases you, then take a quarter of an acre, and after that a larger tract. Farmers complain that wheat does not pay at 70 cts. a bushel, and, say, 20 bushels to the acre; but I am afraid that even a good stand of aster would not be worth to you, in dollars and cents, one-fourth of the above amount per acre. In fact, we scarcely know that any plant raised for honey alone has ever paid even as *much* as $14.00 per acre.—Your suggestion of making a house of sods, for wintering bees, is quite an idea. Especially would this be practicable on our Western prairies, where the winds are terrible, and stone and timber scarce and high. I should think the sods would be just the thing for keeping out the frost.

The following is from our friend Mr. Ivar S. Young, the editor of the *Norwegian Journal of Bee Culture*. The reader will remember that he made us a visit early in the fall. We take pleasure in inserting this short note from our genial friend:

Mr. Editor:—Will you kindly allow me to express, through your valuable bee-journal, my cordial thanks for the friendspip and kind attention which were so profusely shown to me during my long-to-be-remembered visit among the American and Canadian bee-friends. I will, as long as I live, take delight in thinking of my trip, and never! no, never! forget the world's most able bee-keepers, nor their exceeding hospitality toward me as a stranger. I only regret that my time was so limited that I had no opportunity of personally calling on the many more whose names were so well known and dear to me from the bee-journals.

IVAR S. YOUNG.

Christiania, Norway, Nov., 1887.

We congratulate you on your safe return home to that "best wife in the world." We, on this side of the water, appreciate your genteel compliment.

BUMBLE-BEES, AND HOW THEY WINTER.

You say in GLEANINGS, page 950, to master Elbert, that you wish him to tell you more particularly how bumble-bees pass the winter. When a boy, about 8 or 10 years old, my father often called me "Old Imker," because I kept a little bee-yard with half a dozen bumble-bee hives. I hunted up the nests in the day time, put them in little boxes toward evening, in my yard. In spring, when frost was out of the ground, I had to help break up some moor ground, and I then found nests of five and eight bees from four to six inches deep, in small holes, in a sort of sleep; and when warmed up the bees soon came to life. The holes were worked out nice and smooth inside, but I never found them lined with moss or grass, as friend Elbert said.

GERD WENDELKEN.

Marietta, Ohio, Dec. 26, 1887.

Prof. Cook forwards the following from W. J. Ellison, in regard to the saddle-back caterpillar, or the cotton-worm, as it is called in the cotton plantations:

THE COTTON-WORM, OTHERWISE CALLED THE SADDLE-BACK CATERPILLAR.

Prof. Cook:—To-night I feel just like the Irishman who went to see the panorama of his native land. A piece of scenery very near his own home, including a familiar bridge, was shown, when he exclaimed, "Och, murdther! many is the time I have walked over that same bridge." Now, when I see your cut of the saddle-back caterpillar in GLEANINGS, it is such a splendid picture of the gentleman, it is hard to keep from exclaiming about it. In our neighborhood it is known as the cotton-worm, and is the dread of all the cotton-pickers, as it resembles the leaves in color, and, on account of its still, quiet nature, it is more often felt than seen first. This summer I have seen many of these; and but for their signs on the ground, and the way they strip the cotton of its foliage, they would hardly ever be seen until one runs his hand against its bristles. I am beginning to think we have all the insects in nature in our State. I have often been on the point of writing you about the little miller shown in November GLEANINGS, the larva of which is almost as troublesome as our regular bee-moth larva; being smaller, it will go where the bee-moth can't get to deposit its eggs; and many times, when we think our nice section honey safe, we find the cappings cut by the little worms, and a gallery right across the face of a nice section of honey. I wonder you have no notice of it in the Manual.

Stateburg, S. C., Dec. 7, 1887. W. J. ELLISON.

140 BUSHELS OF JAPANESE FROM 2 BUSHELS OF SEED.

In reading the reports on Japanese buckwheat, I see the amount sown by each one is very small. Perhaps I can add some to the list. Not being a farmer myself, but having an interest in bees and also in the grain for milling, I induced my cousin to try; and he thought if a little were good more would be better. He sent to Peter Henderson for two bushels, which was sown July 6, and during the drought it looked as though it would not be worth cutting; but after the fall rains it came on in a hurry. He thrashed just 140 bushels from the seed, and we have ground some of it into flour, and used it in our family. I don't think the cook could tell the difference between this and other buckwheat flour. We grind our buckwheat by the new process, and make very white flour.

Angola, N. Y., Dec. 19, 1887. M. J. BUNDY.

OUR QUESTION-BOX,

With Replies from our best Authorities on Bees.

All queries sent in for this department should be briefly stated, and free from any possible ambiguity. The question or questions should be written upon a separate slip of paper, and marked, "For Our Question-Box."

QUESTION NO. 28.—*Is it best to fill section boxes full of foundation, or use starters only one inch in width?*

Full. C. C. MILLER.

Fill full. DR. A. B. MASON.

Fill full. GEO. GRIMM.

Fill them full. W. Z. HUTCHINSON.

I prefer a full sheet. PAUL L. VIALLON.

I prefer to fill the section. G. M. DOOLITTLE.

Fill them to within an inch of the bottom.
DADANT & SON.

We have used half-inch with very good results.
MRS. L. HARRISON.

I have never experimented enough on this to make my opinion of any value.
O. O. POPPLETON.

So far as my experience has gone, I prefer to use full sheets of foundation in my surplus boxes.
JAMES HEDDON.

I have found it best to use full sheets; though I often use triangular starters. A. J. COOK.

Starters one-third of an inch in width are best for me. Full-sized sheets have a chance to pay for themselves wherever the bees can not keep up with their income. E. E. HASTY.

It is much more profitable to fill them full. If quality only is considered, starters are better. If foundation is made thin, and used fresh, there is practically no objection to its use in full sheets.
JAMES A. GREEN.

The office of starters one inch wide is only to serve as guide-combs. They would not increase the crop of honey much. But to fill the sections with fdn., increases the crop materially. It does almost as much good as to fill them with newly built comb.
CHAS. F. MUTH.

As a rule, we do not propose to put questions in this department where there is only one opinion expressed; but in the above case it seems best to find out whether the friends all agree in regard to full-sized sheets for sections; and it is gratifying to know that the testimony is so much alike. Our good friend Muth seems to have overlooked the fact that recent decisions place full sheets of foundation even *ahead* of newly built comb; that is, where the cells are drawn up to any thing like full length.

QUESTION NO. 29.—*Is a triangular starter, with the point reaching nearly to the bottom of the section, as good as a full sheet of thin foundation?*

No. GEO. GRIMM.

No. DR. A. B. MASON.

No. W. Z. HUTCHINSON.

I think not. C. C. MILLER.

I use full sheets. G. M. DOOLITTLE.

Not in our opinion. DADANT & SON.

Nearly or quite as good. MRS. L. HARRISON.

No, not in my experience. JAMES HEDDON.

I prefer a full sheet. PAUL L. VIALLON.

See answer to previous question.
O. O. POPPLETON.

It answers very well, but I prefer full sheets.
A. J. COOK.

A triangular starter is not as good as a full sheet of fdn. The sections will not be filled in the ame time as when full sheets are given.
CHAS. F. MUTH.

If it pays to use foundation, use it. Why stop half way? Partly filled sections give the bees a chance to build two sizes of comb in the same section, and make a botch of things. E. E. HASTY.

No. Firstly, because it will not be finished quite as soon. Second, because it will not be as well finished. The foundation should be cut as large as possible, without having it kink from the lower corners touching the sides, when put in with ordinary care. This gives a square, solid comb of honey, firmly attached all around, that is easier to shake bees from, looks much better, and is much less liable to break out in shipment. JAMES A. GREEN.

This question, also, seems to be decidedly in a line with the former one.

QUESTION NO. 30.—*Is it advisable to use a very thin foundation in the sections, say 12 or 15 square feet to the pound? What weight of foundation—that is, how many square feet to the pound—do you prefer to use in the surplus department?*

Eleven feet. DADANT & SON.

Any kind or weight, if the base is thin. GEO. GRIMM.

About 10 square feet to the pound is nearly if not quite right. G. M. DOOLITTLE.

1. Yes. The thinner the septum the better. 2. About twelve. DR. A. B. MASON.

I never found any too thin, particularly where full sheets are used. MRS. L. HARRISON.

I prefer fdn. of about 8 square feet to the pound, but the septum should be as thin as it can be made. O. O. POPPLETON.

I think so. I used to think thick was as good in the sections, but now I would have at least 12 feet per lb. A. J. COOK.

Yes, it is advisable. I prefer it about 10 to 12 feet to the pound; 10 ft., if the extra weight can be put in the walls. W. Z. HUTCHINSON.

A good deal of experience has decided me against such thin foundation. About 10 or 11 feet to the pound is thin enough for me. C. C. MILLER.

More honey can be secured with a heavier foundation, 9 or 10 feet to the pound, but I think it advisable to use the thinnest foundation. JAMES A. GREEN.

Foundation measuring about 10 square feet to the pound has my preference for sections. It handles easier than the thinner sorts, and there is no danger of the fishbone. CHAS. F. MUTH.

I want the thinnest that can be made. At times bees will thin the fdn. pretty well, but at other times they will not; therefore by using it very thin at all times you are sure not to have the fishbone. PAUL L. VIALLON.

Use the thinnest good foundation you can get, if you fill the sections full. In case you use only starters, take foundation of medium thickness. The little "snipes" can nibble it all out too easily if it is thin. E. E. HASTY.

I have had the best success with full sheets of foundation in surplus boxes as heavy as 8 square feet to the pound; but this foundation had a very thin base, the weight being mainly in the side walls. I am now using and selling surplus foundation running about 10 to 12 square feet to the pound, and this is as heavy as I care to use fdn. made upon roller-mills. JAMES HEDDON.

The drift of the above seems to be, that we need some sort of wall to our foundation; and if the bases are very thin, it does not matter very much how thick the wall is. As thick walls, however, cost more money, on account of the wax contained in them, most of us would prefer rather light walls, unless, indeed, it be found true that we can well afford to pay for having considerable wax in those walls. As bees will probably secrete more or less comb any way, it is not likely that it will pay us to furnish them wax enough, even in the walls, to draw the cells up at full length.

REPORTS DISCOURAGING.

WANTS NOTHING BETTER THAN THE WOODEN BUTTER-DISHES FOR FEEDERS.

THE past season has been very discouraging to bee-keepers in this vicinity. I had 100 lbs. of comb honey from 40 swarms (fall count), and had to feed 75 lbs. of sugar. I used wooden butter-dishes to feed in, and don't want any thing better. C. R. GUTHRIE.

Prospect, Wis., Jan. 2, 1888.

POOREST SEASON IN 20 YEARS.

I have been in the bee-business for 20 years, and it has been the hardest time on the bees that has ever been since I commenced. I have about 60 gums left, and expect to continue in the business, for I am not at all discouraged, since all lay in the same complaint. L. J. BLANKENSHIP.

Corsicana, Mo.

REPORTS ENCOURAGING.

BEES PAID, EVEN IN A POOR SEASON.

MY report for 1887 is short and easily counted. From 32 colonies, spring count, from May to Aug. (no late honey), is only 240 lbs. of comb in 1-lb. sections, and about 60 lbs. of extracted; 43 queens raised. The box honey brings me 25 cts. a box; extracted, 25 cts. per lb. The queens, I used myself. I also carried over from last year over 200 lbs. of comb honey for which I expect to get 25 cts. a pound. For extracted honey I use the small jelly-cup, which holds ½ lb. of honey, which brings me 17 cts., cup and all. I find they sell more readily than any thing else I can put extracted honey in. Although the poorest season I ever experienced, I am satisfied. They will pay me for all my trouble and expense. They have gone into winter quarters with plenty of honey gathered from asters. My bees have been shut in only two days. The first week in December the mercury was down to 14; since then they flew out every day until Dec. 17, when the first snow fell, 11 inches on the level, but cleared off warm again. The 21st they had another fly. To-day they are shut in again. I am afraid the warm weather will be hard on my bees. The queens commenced laying Dec. 1, and have considerable brood started for this season of the year. JOSIAH EASTBURN.

Fallingston, Pa., Dec. 24, 1887.

FROM 50 TO 68, AND 1400 LBS. OF HONEY.

Spring count, 50 (lost 18 in wintering last winter); 15 of this number were so near dead that it took them all summer to build up and gather honey enough to winter. From the 35 good ones (none were very strong) I took 1200 lbs. of comb honey and about 200 of extracted, and increased to 68; one flew away. At the commencement of basswood I had eight first swarms, which I put back, as they had 56 one-pound sections partly filled, and I knew if I hived those swarms it was good-by box honey from those colonies, so I hived them back, and every one of them stayed and went to work, and I was very much pleased when I came to take that honey off. All of them filled and capped nicely. I hear almost every one complaining about the season; but I believe if my bees had been as strong as in the spring of 1886 I should have had the usual yield of honey. I had three or four colonies that were in good trim, and they made me from 70 to 80 lbs. of nice comb honey, and this is about as much as we ever get from the best colonies.

New Milford, Pa. F. W. DEAN.

JUVENILE DEPARTMENT

Every boy or girl, under 15 years of age, who writes a letter for this department, CONTAINING SOME VALUABLE FACT, NOT GENERALLY KNOWN, ON BEES OR OTHER MATTERS, will receive one of David Cook's excellent five-cent Sunday-school books. Many of these books contain the same matter that you find in Sunday-school books costing from $1.00 to $1.50. If you have had one or more books, give us the names that we may not send the same twice. We have now in stock six different books, as follows; viz.: Sheer Off, Silver Keys, The Giant-Killer; or, The Roby Family, Rescued from Egypt, Pilgrim's Progress, and Ten Nights in a Bar-Room. We have also Our Homes, Part I., and Our Homes, Part II. Besides the above books, you may have a photograph of our old house apiary, and a photograph of our own apiary, both taken a great many years ago. In the former is a picture of Novice, Blue Eyes, and Caddy, and a glimpse of Ernest. We have also some pretty little colored pictures of birds, fruits, flowers, etc., suitable for framing. You can have your choice of any one of the above pictures or books for every letter that gives us some valuable piece of information.

CONDUCTED BY ERNEST R. ROOT.

THE BOYS' BEE-HIVE FACTORY.

NOT MR. SHIFTLESSNESS THIS TIME, BUT AN ENEMY STEALING HONEY FROM HIVES OF BEES, AND THE PENALTY THEREFOR.

"MY! how it rains!" said Jimmie to his playmate Sam, as they were both trudging home at night from school. "I never saw such a season before in all my days."

"Yes," replied his companion, "and such roads! Why, it is just awful deep. Look at that wagon-wheel! the mud reaches almost to the hubs."

"I wish these folks along here would build a sidewalk of some sort," said Jimmie, as he started toward home, leaving his companion. "I have to wade through the mud day after day, and you know ma always makes me clean my feet. It's a job to do it to her notion. Ted gets a lickin' nearly every day for bringing mud in the house."

When Sam reached home he noticed there was something wrong with that side of the barn which faced the road. It was pretty well covered with spots of mud, as if some one had thrown handfuls on the barn-side. It was evident that the window of the loft was the target, for it was not only covered with mud, but several panes of glass were broken also. Seeing this, Sam, somewhat excited, hastily made his way into the shop which he and his playmate had recently cleaned so thoroughly. What a sight greeted his eyes! The pail of white lead which the boys used to paint the hives with was upturned upon a pile of partly finished hive and frame stuff. The young doves which he had been raising with so much pride were missing from the dove-cot, and the tools were scattered over the bench and floor; likewise chunks of mud were on the floor, which had been thrown through the broken lights of glass.

Sam was angry beyond endurance, and proposed forthwith to get vengeance upon—whom, he didn't just exactly know. He proceeded to the house.

"Ma, some one has muddied the barn all up. There are great chunks of mud on the floor, and—

"That's nothing strange," interrupted his sister. "Mother and I, during these wet days, have to clean the porches quite often, and it was only this morning that I picked up several chunks of mud off the carpet, just after you left. Mr. Shiftlessness comes around quite often these muddy days."

"Oh, well! Shiftlessness doesn't steal young doves; he doesn't throw mud all over the sides of the barn, tip over paint-pots on hive-stuff, and break windows."

"He does things pretty nearly as bad," persisted his sister.

His mother, observing that something was really wrong, was about to make further inquiries when Jimmie came running over.

"Say! what do you think! some one has been knocking my hives over. The covers were off some of 'em, and things look as if some fellow had been there this afternoon, stealing honey. Some of the combs are broken into. You know my hives are behind the bushes in the back yard."

"You don't say!" said Sam; "but just you come out to the barn with me; some one has tried to spite us both."

Thither the two started. They both came to the conclusion that an enemy, jealous of their enterprise, had done this, and that the perpetrator of the mischief to both was one and the same person. Something ought to be done.

"Let's present the matter to **pa**. He is just entering the gate now."

When the latter had joined the boys, each told the story of his grievance. Mr. Green listened in silence, and said:

"The damage done to the barn and its contents is comparatively small. The most that was done, as nearly as I can discover, was the amount of mud thrown. It it hardly worth while to think of obtaining a redress by law; and, besides, I am not sure that it would be wise or Christian. The evident purpose of the perpetrator was not so much to damage as to provoke and anger us. Retaliation would do no good, and possibly would result in harm. It would tend to make an enemy a worse enemy than before. If we can find out the name or names of the guilty persons, perhaps a remonstrance delivered in a Christian-like way should be made to them, and at the same time they should be told that there must not be a repetition of the offense, or we shall be under the necessity of commencing action to recover damages."

"I think it was Jake, the fellow who broke our windmill before, and it would make me feel awful good to black both his eyes," said Jimmie. "I don't care anything about your law."

"Yes," said Sam. "I agree with Jimmie."

"What! you, Sam?" said his father, in surprise. "Do you think it would be the best way?" Sam nodded his head rather feebly. "At any rate," said he, "I should feel better."

"I do not doubt that," said his father; "but I was only questioning whether you thought it was right. As to Jimmie's bees. this is more serious. There is a heavy penalty attached for stealing honey from colonies. I believe that in this State it is a penitentiary offense."

"Whew! what did they put it on so heavy for? Seems to me that's purty tough. I'd just like to see the fellow what meddled with my bees while I was at school go to State's penitentiary. No, I guess I'd rather black his eyes, after all."

"Yes," replied Mr. G., "I do not question your preference; but really, boys, such retaliation is not right, justifiable, or manly."

"But we'd feel a mighty sight better for a while, any how," still persisted Jimmie.

"I think I shall have to get mother to talk with you further on this question. You both have utterly wrong ideas as to the best means of bringing about the ends of justice."

"Well, pa, why do they make the penalty so heavy for robbing bee-hives? You don't say they could send a man to penitentiary if he stole only 50 lbs. of honey from a few colonies?"

"That is just what I mean," said his father. "The value of the honey stolen from a hive of bees is usually small. But the damage occasioned thereby in the apiary is incomparably greater. The colony robbed and pillaged by human hands will be attacked tenfold more vigorously by the bees from other colonies. The result is, the whole apiary will be in an uproar if the owner or some one else does not happen to be on hand to arrest the mischief. For instance, suppose some one should steal honey from three or four of my colonies in the Valley apiary, where no one visits them but once a week; suppose, also, the thieves should leave the combs mutilated, the hives uncovered, just after the honey-flow had ceased. It would be the ruin of a good many colonies, and the whole apiary would be demoralized. A gain of a few cents' worth of honey to the thieves would mean the loss to me of perhaps several hundred dollars in bees, valuable queens, and damaged section comb honey; honey which would otherwise have brought me full price, now only half price. If the mischief ended where the human robbers left off, the case would be different."

"Every thing was quiet when I left my bees a little bit ago. There wasn't no robbing nor any thing of the kind," said Jimmie.

"Yes," said Mr. G.; "but it has rained all the afternoon, has it not? Bees will not start to rob in the rain, though they will sometimes continue, if not raining hard, when once started. You may count yourself fortunate in having the shower."

Mr. Green then went into the house, leaving the boys standing.

"Say, Sam, we'll find out who done that, and then we'll—you know. I'll see you tomorrow."

So saying, Jimmie hurried off home.

JUVENILE LETTER-BOX.

"A chiel's amang ye takin' notes;
An' faith, he'll prent it."

SANTA CLAUS.

Santa Claus brought me a dress and a pair of shoes, and a corn-popper; and he brought my little sister a cart and a plate, and she thinks they are very nice. PEARL PASSAGE.

Stark, Mich., Dec. 26, 1887.

BEES AND CARP-PONDS.

We have about 60 swarms of bees. We put them in an underground cellar on the 19th of the month. Our cellar is 12 feet under the ground. We have three carp-ponds, with 60 fish. They are frozen over now. We are having a nice Christmas. The ice is eight inches thick. JOHN WILTSE.

Falls City, Neb., Dec. 25, 1887.

TOO YOUNG TO KEEP BEES.

My papa and my uncle are bee-keepers, but only for pleasure, for they have no time to tend to the 50 swarms. I wish I could help my papa about the bees, for I love them, but papa says I am too young yet, but that he will give me a swarm as soon as I can tend one by myself. SOPHIA LANG, age 10.

Joelton, Tenn.

Tell your papa that we think you are quite old enough to have a colony, and manage it quite successfully now.

"A STUNG ON MY NOSE."

Here is another letter from a young friend, which is quite original in composition as well as spelling, so we reproduce it just exactly as he wrote it. We hope, therefore, he will not take it unkindly, as there are lots of big folks who do not write or spell any better.

Mr root. dear sir i am a boy 13 years old we have 50 swarms of bees and was in a good shape for to get a lot of honey but it was so dry the bees was just began to work nice but it was to dry we got about 300 lbs. of honey my father works at the stone mason trade and i and my mother is at home i watch the bees when they swarm i catch the qeen wich is cliped and put her in a cage the bees will sat on the tree and i will stand and look at them and when I see that they are getting restless i will put the queen in the hive and will watch her. sumtime she will come out agin then i will put hir in agin and it is fun to see them march in the hive they hury to get in and sometimes I get a stung on my nose but I due not mind it and work on my way my sister is watching the cows all summer in winter i pick up bees in the snow and put them in a can and under the stove i have got a little swarm all redy i have got them in a box upstairs near the stove pipe i look at them and i see that they have got young brood and hatching bees all ready and good italian at that. yours truly **MICHALL.**

Now, little folks, see how many corrections you can make. Copy the letter, putting in capital letters where they belong, and making such other corrections as may be necessary. Then show the letter to your mamma or to your teacher.

FROZEN BEES REVIVING ON THE FOURTH DAY.

I saw your problem for juveniles in the Nov. 15th No., and I will now make the following report. On the morning of Dec. 1, pa assisting me, I placed some bees in a cage and others in the snow, as requested.

Dec. 1, 7 P. M., the four revived.
" 2, 7 A. M., " " "
" 2, 7 P. M., " " "
" 3, 7 A. M., " " "
" 3, 7 P. M., 2 from cage only.
" 4, 7 A. M., not one out of a dozen.

On the second day there came a thaw, but the bees were kept on snow and ice.

I will tell you that pa has 22 swarms of bees, all nicely put away for winter in your portico hives, with chaff at sides and on top. He wintered eighteen last winter and lost none, and no dwindling in spring. We had it so dry here all summer that pa did not remove the crates until fall, so the bees could carry down what they might need for winter, and then we got 400 lbs. surplus.

Pa has your A B C, and takes GLEANINGS. He says he would not be without these for three times their cost. He gets all his supplies from you.

Worthington, Ind. D. S. STOUGH, age 14.

Your experiments were well conducted, and we send you the knife. You did not do quite as well as grandpa Whiton, as recorded on page 950, Dec. 15th issue. He made them revive on the 5th day; still you did quite well. Thanks for your kind words. We always appreciate them, especially from the little folks.

FROZEN BEES REVIVED AFTER TWO DAYS.

I began trying to see how long bees would revive after being in a chilled condition, Dec. 26, 1887, at 11 A. M.; and 6 hours after, I took up 15. They all revived—the ones from the snow first. The next morning I tried 20 more, but none revived. The only thing I could think of is, that I must have put them in too hot a place; then I took 25 more, of which 20 revived. In 12 hours I tried 10 more, and all came to life. About 48 hours from the time I commenced, I took 15, of which 9 came to life; 24 hours after, I tried 25 more, of which none came to life again within half an hour, and I thought they must be all dead. CHARLIE SEABRIGHT.

Blaine, Ohio.

So none of your bees revived after two days. There seems to be quite a difference in results. In one report we find that the bees were brought to in 5 days; in others, one, two, and three days. It is possible that the difference in locality makes a difference. A real dry severe cold, say where the mercury showed 20° below zero, might maintain life in frozen bees much longer. Will some of the little folks in these real cold places try the experiment as outlined in the Nov. 15th and Dec. 15th issues?

AN INTERESTING LETTER FROM A LITTLE GIRL IN MASSACHUSETTS.

We have not had any snow yet—only about two inches, which all went away the next day with rain. Yesterday at 7 A. M. the thermometer was 22°; at 2 P. M., 25°. The wind is blowing very strong today, and it is so cold I can not play outdoors. Father has taken in his Simplicity hives, but his chaff hives are all on their summer stands. I hope we shall get some honey next year. We did not get enough to put on a piece of bread this year. Father sets his hives out when it is warm, and the bees have a nice fly. He had a frame of comb with honey that was dabbled up some, which he cleaned up and put on the landing-board for the bees to carry in. He has a way of calling the bees out (when they are not flying) by tapping lightly on the landing-board, to call their attention to what he wants. I think the bees must like him, for he hardly ever gets a sting.

I have seen father do so, and of course you know I must do as father did. So I walked up to the hive and I guess I rapped too hard; for before I could get away from in front of the hive one came straight out into my face and stung me almost in my eye. It did not swell up very bad, because I held a wet cloth over it and it was soon gone. I suppose I shall have to get used to it if I want to be a bee-keeper. Father says experience is a good lesson, and I believe it is true. You may be sure I won't do that again, for I know the bees don't like it. I like bees, and I want the bees to like me. Father says, after I learn the different dispositions of bees I shall know how to handle them better. Don't you think I have a pretty good father? I think so, for he lets me read GLEANINGS, and I like that continued story about the "Boys' Bee-hive Factory." When it is time for Santa Claus to come around he never forgets to stop at our house, even if there aren't any children here but myself. I have one brother but he is living in California. He says there are lots of bee-ranches there. He is 26 years old. When father goes to the fair again with the bees, he is going to buy me a hive of albinos. What do you think of those? They say they are very pretty bees, and I should like to see them very much. FLOSSIE J. ELDRIDGE.

New Bedford, Mass., Dec. 30, 1887.

Thanks for your kind letter, friend Flossie. So you didn't get even enough honey to put on a piece of bread. I suppose you mean surplus. The old folks tell us, that what man has done man can do; but I guess it does not always follow that what man has done, little girls can do. At least, you did not find it so in your case, did you? Do you know of Josh Billings? Well, he was a kind of funny-wise man who didn't spell very well. He said, "Egsperience teaches a good skule, but the tuishion is rather hi." The young bee-keeper generally finds out, sooner or later, that Josh is right, and, like yourself, they find that, if the tuishun is not "hi," the bee is "hi" tempered, when not used right. Yes, I think you have got a real nice papa, especially if he takes GLEANINGS.

OUR HOMES.

Whoso shall offend one of these little ones which believe in me, it were better for him that a millstone were hanged about his neck, and that he were drowned in the depths of the sea.—MATT. 18:6.

WE have just had a revival at our church, and quite a number, young and old, were taken into the church last Sunday. The ceremony was one of the most sacred and impressive of any I ever attended before. Our minister did not preach any sermon; in fact, there were so many to be received into the church that there was not time for preaching. But I don't think I ever heard any preaching in my life that struck such heavy blows on the head, and, I trust, on the heart as well, of your old friend A. I. Root, as did this *service* without any *sermon*. Before me, on the right hand and on the left, were those I had known and worked with, from the age of ten years and up. Among them were quite a number I had prayed for; and sometimes I had prayed with a very small amount of faith, I assure you. There were those among the new converts whom I had scarcely dared hope would ever stand up publicly before men and accept the cross of Christ. I had not only been well acquainted with these young friends, but the parents of some of them were intimate friends of mine, even before these children came into this world of ours. Some of them had worked for me in years gone by, in the relationship of employer and employe, and I had had opportunities of seeing their weak points, and they had no doubt noticed *my* weak points. A great many times I see faults and failings among those around me, that are of such a nature that it seems to me I can do nothing but pray for them; and sometimes (I am ashamed to acknowledge it) it has seemed to me as though it were *no use* even to pray for them. I am afraid I get into the same attitude of mind as did a good old deacon, when, during a severe drought, they met at the church to pray for rain. Our friend was a careful observer of the weather; and, after stating the points of the case as it lay before them, he gave his deliberate opinion something like this: "Dear brothers and sisters, I am really afraid there won't be any use of praying for rain so long as the wind holds so steadily *in the northeast*." Very likely our good old friend was thinking they had better go home and wait for a more propitious time. Well, I have very often gone off by myself, and prayed, as well as I knew how, for some one who, it seemed to me, was just about absolutely contrary and evil-minded. Sometimes I am shocked and pained beyond any thing I can tell you, by hearing that some young friend, in whom I had begun to have considerable faith, had been indulging in profanity, or, may be, in obscene talk. In anguish of soul I have said to my informant, "Why, dear friend, can it be possible that I have been so misled? Did such words ever pass the lips of this young friend from whom I had been hoping so much?" Alas! it was but too true. While I thought I had been sowing seeds of purity and godliness, the enemy had sown these foul tares, which were taking root and growing and spreading.

"But, brother Root, even if they have united with the church, is it absolutely certain they will give up this bad talk, or these selfish or dishonest practices?"

No, my friend, it is not *absolutely* certain. I shall have to confess that even church-members are sometimes guilty of bad talk and dishonest practices; but do not, my dear friend, I pray you, be in haste to turn your back on the religion of Christ Jesus, and to decide that it does not cleanse from all sin. Because you have seen a few cases of this kind, do not, I beseech you, say that the Lamb of God does not take away the sin of the world. The act of joining the church, even though the person be honest and sincere at the time, does not, of itself, make sure of this better life which we are hungering and thirsting to see; but I will tell you what *is* sure. After these young friends, who are addicted to evil ways, have united with the church, if you can induce them to attend regularly our young people's prayer-meetings, and take part by repeating texts of Scripture, helping to sing verses of our inspiring hymns, giving occasional testimony as to the progress they are making in Christ's service, and, as they get a little older in the Master's service, taking part in prayer in their own simple language, this sort of thing *does* save. I have never seen it fail. It is as sure and certain as that the child at school will, by diligent attention to all requirements, succeed in getting an education. Yes, it is more certain; for some pupils may work hard, and yet be so dull of comprehension that they never make even fair scholars (that is, once in a great while we find such cases). But he who *tries* to follow Christ Jesus, never makes a failure—no, never; and may God be praised that it is so.

Well, the powerful sermon that the Holy Spirit poured down on my head and into my heart was this; and it seemed like a voice from heaven, saying, "A. I. Root, on you rests a heavy responsibility; all the more heavy, because you have, at different times, exhorted these young ones to turn away from earthly allurements, and to choose Christ Jesus for their portion. On you the responsibility rests of watching over these young ones; of extending a helping hand; of giving them even now, as opportunity presents, a word of welcome. Tell them just what you think of this act of theirs—this act of their own free choice. Tell them, too, of the work they will have to do; of the struggles and conflicts, of the discouragements, the falling-down and the getting-up again. Tell them how wily is Satan; for *you* know by personal experience and personal conflict, *if any one* does. The very fact that you have prayed for them makes the obligation and responsibility heavier on your shoulders. If you have planted the seed, now bestir yourself to watch over the crop, and see that no tares take root and spoil the good work so well begun. There is no escaping the obligation laid upon you. The fact that you *now* discover that unchristianlike feelings have been lurking in your heart toward some of them makes the obligation all the heavier. A little soul has just started—has just begun to take root and grow, for Christ Jesus; be careful how you, by any careless act, shall tear this young plant from the new soil in which it has begun to take root. Be careful how you in any way discourage or hinder, or how you even by a sin of omission let one of these little ones settle back and turn to other ways."

These thoughts passed through my mind until, in almost anguish of spirit, I breathed again and again the little prayer, "Lord, help! Help thy poor unworthy and unprofitable servant in this, his hour of greatest need. Help him to feed thy lambs." Peace came after this prayer; and as I looked from one face to another, reading their little minds as I have learned to read them through long acquaintance, lovable traits and pleasant memories came up from the past and gave me greater faith and greater hope; but for all that, I felt the power of that service without a sermon, still, and I feel that it is not only the little band here in Medina who are resting greatly on my poor self, but that it is perhaps hundreds of others far away, who read GLEANINGS, and whom I know nothing of (although they know me), and who are perhaps learning to depend greatly on my poor self. In view of this I want to ask you to pray for me, dear friends; and I feel like saying, too, with an earnestness and sincerity that I never asked before, that I fear I am not fitted for the responsibilities that are fast gathering about me. I am only a very, very poor and imperfect sinner at best. I do love righteousness, however, and purity in thought and in deed; and I do love Jesus, and I am trusting and hoping, not in my own self, but in the blood freely shed for me.

I want you now, dear readers, to go back a little, and come with me to East Saginaw, Mich. I was up early, had breakfast at the hotel, and was hunting for greenhouses devoted to vegetables and market-gardening. For some reason or other, they had put new men on the street-cars for drivers; and one of these new men started me off on the wrong line. The *drivers* were new, but the *horses* were old. The street-car route lay along by the river, and soon we came to a bridge. Now, the track branched so that one route was across the bridge, and the other was straight along the river-bank. I had been admiring the intelligent-looking horse that made the bright new car fairly spin on that bright frosty morning. All at once the horse, without orders, turned off in a strangely eccentric way, and began pulling sidewise on the car. It fact, he persisted to such an extent in this strange manner that the momentum of the car pulled him backward, almost, for a distance. What should possess a bright and intelligent horse like this one to make such an ungainly maneuver as this, right when the car was at full speed? The driver woke up from a sort of sleepy indifference, pulled his lines with a tremendous jerk, called the horse a fool, while he gathered up the ends of the lines and gave him a big cut, and then berated him with loud, unkind words. Just then it became apparent what had caused the mistake. The horse had evidently been in the habit of going straight ahead; and in order to go straight ahead, he, instead of letting the car turn off by the bridge, had been taught to pull strongly over toward the side of the straight track. This he did of his own accord; but with the new drivers the route had evidently been changed, and the switch on the track placed so as to swing the car out across the bridge. The driver had been told of this, but he was too stupid or sleepy to give the horse notice of the different arrangements on this bright winter morning. Poor horsey! His bright, intelligent, wide-awake look was gone. The head that had been held proudly aloft as he carried his burden, was now lowered in shame and disgrace. The blows from the lines hadn't hurt him much; but the sting of the words had evidently sunk deep into his horse feelings. His ears were dropped back as much as to say, "There is no more enjoyment today for me." And, dear friends, I can imagine that thoughts something like these were passing in his mind. Don't you think that horses have thoughts? Well, I do; and this is what our poor dumb friend was thinking, if I interpreted him rightly:

"Oh! why did he scold me when I surely was not to blame in that blunder? Why did he not with lines or words indicate in some way, at least, that, instead of going straight ahead, we were to cross the bridge *this* morning? I don't mind hard work, for I love to serve the children of men. I do not mind so very much if I go sometimes without food and water for a time. I can also bear to be made to go when I don't feel well; but, oh I do hate to be scolded, and called a fool. I love this busy world; I love to see the improvements that are going on in it; I love the great bridges built by the hand of man; I love to see the lumber coming down in great rafts; I love to help carry it to the mills, and then away from the mills to the bridges that are to be built; I love the locomotives and the great railways; I love to see buildings go up, and to see the march of progress and improvements, even though a thousand things are involved that horses are not permitted to understand. I admire my masters's superior intelligence, and I am willing to bow my head to him meekly, as his servant. I accept my position, and rejoice in it; but oh! I wish he would not scold me when I am exercising the best judgment that God gave me. I do not mind being scolded or whipped when I am contrary or stubborn; but for many years I have prided myself on being not only a good horse, but an intelligent one. I have studied my work, and felt proud of being able to do it without so much as even a suggestion. Of course, I love to be appreciated. I love a kind word and an encouraging pat on the neck when I have comprehended what was wanted of me, and have been able to do it without telling; but I *can* get along and be happy without these words of encouragement. If he had not called me a *fool* I could have forgotten all the rest. My old master, whom they have taken away, knows that nothing in the world would make me run away, or disobey orders. He knows I never flinched on a load, no matter how heavy or how unreasonable it may have been; but why didn't they tell this new man how hard I had worked for a good reputation? And then to have me cut up that ridiculous figure before all those passengers in the car—those intelligent and well-dressed men and women! Women are always kind to horses, so far as I know; and I am sure that, if that driver had been a woman I should not have been called a fool before somebody inquired into the matter and explained *why* I did not understand my business. Many people think that horses can not have things explained to them; but as the world is improving and progressing in so many ways, I wonder if it is not possible they shall some time know us better than they do now; and, may be, when they know us better they will love us more. Oh! why did he not wait a little before he—called—me—a—*fool?*"

An hour or two after the above facts were passing through my mind, the mayor of the city of East Saginaw gave us a little talk at our bee-keepers' convention; and as it was not quite noon when he closed his talk, he suggested that, if any of the bee-men would care to see some of the machinery that moves the great city, he would, with great pleasure, wait on them. Of course, we gladly accepted his kind invitation. The first sight that was shown us was the fire department; and he said that, as it might be new to some of us, he had arranged so that, in a few minutes' time, a signal of fire would be sounded. This signal would be given from a part of the city over five miles away, and we would have the pleasure of seeing how the boys, the horses, and all the machinery worked. The boys were supposed to be up stairs in bed. They slept with suitable clothing for jumping up at a second's notice. Electricity plays an important part in the work, for it sounds the alarm, turns up the gas, opens the stable-doors, and lets the horses rush to their places, even before a man or boy is on the spot. The horses are confined in stalls, without any halters; and at the alarm of fire and the opening of the doors they evidently *try* to be on hand before the boys are. Well, every thing went off as we were informed it would go off. With the crash of the alarm and the sudden blaze of gas, the doors flew open and the horses came with a plunge right under where their harnesses hung. One horse attracted my attention particularly. Before putting his bits in his mouth, as he was taught to do, he took time to give his companion a friendly nip in the neck, as much as to say, "Now we are going to have some fun." He was quick enough, however, to have the bits in his mouth as soon as the boys came tumbling down a brass rod quite near the horses' heads. They slide down this brass rod in preference to coming down stairs, because they can come quicker. One slid right down over the other, so it looked like a live stream of nice, healthy, handsome-looking boys. The mayor told us to look at our watches, and see how many minutes it took them to get under way. Why, dear friends, my Waterbury watch did not say any *minutes* at all. The engine was off like a shot, before the minute-hand of the watch showed scarcely any time at all.

After the horses came back, I petitioned to take a better look at them; and for the sake of letting us see just how they behave themselves, the mayor invited the bee-keepers to stand at the back of the stalls. These stalls, remember, were open at both ends. The fire-alarm doors closed the space at their heads. The other was permanently open; therefore when they came back after being unharnessed, it was their custom to go right through the stall, then turn around in the passage back of the stalls, then go back with their faces toward the aforesaid doors. They started in as naturally as if it were an every-day occurrence (which is really the truth, for they go through the above programme every day at noon), until the playful one before mentioned happened to look up and see a lot of strange men back of his stall, in the passageway. He stood with his ears pricked up, looking at us for a moment, and then, evidently being bashful, or a little afraid of so many strangers, he concluded to see if he could not turn about inside of his stall. The stall was too narrow, however, and I began to think he might get stuck, or perhaps injure himself. His master, however, getting his eye on him at just this crisis, called out, "Why, Sam, I am ashamed of you. These men won't hurt you. Come in here and see them."

The master was one of the nice young boys I have before spoken of. The horse looked at the boy a minute, then looked at the crowd as some bashful boy or girl might have done; and finally, in obedience to the word of command, came up to us. He sniffed a little; but being assured by his keeper that we were good men, he evidently took it for granted, and let us pat him and talk to him. But he could not restrain the vein of fun that seemed to be a part of his horse nature. For as he turned, he gave a playful nip toward the region of the ribs of one of our bee-men who was in the foreground. At this so many questions were asked, the keeper called to him, "Come out here, Sam. They want to see you perform some of your tricks."

Obedient to the word of command, Sam walked out and followed his keeper. After several tricks, the boy removed his cap and said, "Now, Sam, let the gentlemen see you kiss me." Sam gave us another look, as much as to say he didn't really like to show his affection before so much company; but finally he put up his lips, opened them a little, and gave the boy a caress on his cheek, as it were; and as if to indicate to us that it was not all a form without any heart in it, he also gave his master a loving lick across the forehead with his soft tongue. The boy was a nice clean boy. He looked bright and intelligent; and as the horse gave him this caress, I felt a greater admiration for my fellow-men, in one line at least, than I ever felt before. This horse and this boy understood each other perfectly. They could almost talk with each other.

May be what I have told you is an old story to some; but I am sure there are others like myself to whom it will be new; and I tell you, my friends, it was a real pleasure to me to stroke that great powerful Sam on the neck, and tell him that I not only admired him, but that I loved him from the bottom of my heart. And although I did not say it out loud, I said to myself that I loved God more, after the experience of that morning, and I felt like thanking him for these dumb friends of ours, the HORSE.

He paweth in the valley, and rejoiceth in his strength; he goeth on to meet the armed men.—JOB 39:21.

Now, then, friends, there is nothing said in our text about offending a horse, or hurting his feelings by harsh, unkind, and undeserved words; but there has been a feeling growing up in my mind for years past, that we shall be surely called to account—some of us—for the unkindness we show toward our dumb brutes. Sometimes I have fairly burned with indignation to see a man whip and scold a horse because the horse made a mistake. Instead of feeling gratitude in his heart to God for having given him a dumb servant that can understand so much, the brutal driver abuses the horse for not understanding something that has never been explained to him at all. I do wish that something might be done to bring about a reform in this matter. I have sometimes thought a man ought to be fined and imprisoned for letting his temper lead him to vent his wrath on the horses that could not answer back or retaliate; but, my friends, such acts that stir us all are not to be compared with scolding or punishing a child for something the child did not understand or comprehend. And now, dear friends, have mercy and compassion for me when I tell you that, during that service at church, I fairly trembled for fear that I should myself be guilty, sooner or later, in saying something or doing something that might discourage these little ones who are just starting in the path to the eternal city.

Now, friends, one more glimpse and I will close.

After my visit at East Saginaw, I am almost home. The train is rounding the last curve, and the factory buildings are in sight. As we slacken up at the depot, John and Ernest are on the platform, ready to welcome me. After the first salutations are past, John says, "We have good news for you."

"Yes," adds Ernest, "the best news you can think of."

I looked at the boys inquiringly. They both smiled. I stood still. What could it be—the best news I could think of? Dear parent, what would be the best news that *you* could think of? What should be, if it is not, nearer the parent's heart than any thing else in this world? While the boys were watching me I made an inventory of my life and my all. For a time there was a dim and vague thought that I could not quite grasp. Little by little it began to shape itself around our fifteen-year-old daughter—the one whom you have known as Blue Eyes. I had been praying a good deal for her lately. Shall I tell you why? She is a wide-awake girl, and alive to all that is going on in the world. She has been a great reader. In fact, she has read a good many books that I rather preferred she should not read. During the past winter she has been inquiring about the outside world quite a little; and as different things came up, she has been inclined to query some, why her mother and I could not consistently consent that she should attend eucher-parties, theatricals, and even public dances, that many of her schoolmates were in the habit of attending. I explained the matter as best I could, but she did not seem quite satisfied. Not very long ago she made a remark something like this:

"Why, pa, if Christian people can't have any fun at all, I am not really sure that I want to be a Christian."

That is the most she ever said in that direction; but I felt afraid of the allurements of this world. Dear father or mother, have these questions ever come up in your own home? Now, while the boys were looking at me smilingly, I felt like thanking God that the dearest wish in my own heart, and the best news that this world could furnish, was to the effect that Constance had made Christ Jesus her choice. I suppose these thoughts passed through my mind in a little more than a second. I opened my lips and said interrogatively, "Connie?" Ernest replied, "Yes, father, you are right. We have had a great revival, and she is one of the new converts."

It was indeed true. While only a few weeks ago we almost had to *drive* her to meeting, now nothing could keep her away from the meetings that were held daily; and as I sat there beholding that service without any sermon, Blue Eyes was among the rest; and this voice that had been laboring with me said, "Behold the answers to your prayers. Now make sure that nothing in your words or actions shall undo the work of to-day, and offend this one just getting a bright, happy, and joyous glimpse of the new life, and the new world illumined by the spirit and the love of Christ Jesus."

THE OHIO STATE CONVENTION.

IS OUR STATE DOING HER PART IN DEVELOPING THE INDUSTRY OF BEE-KEEPING?

FOR several years back it has been lying on my conscience because I feared we were hardly doing our part, compared with what other States have done, in regard to encouraging progress in our line; and one reason why it lay on my conscience is, that I felt pretty sure I was not doing *my* duty. I have felt sad to think that sometimes the meetings where I have been present lacked both in numbers and enthusiasm, compared with the conventions which I have attended regularly of late in Michigan, and recently in New York State. I not only thought of it a good deal, but, to tell the truth, I have been praying over the matter. Well, with this preface I am glad to be able to say to you, dear friends, that I have only just returned this 12th day of

January from one of the best conventions I have ever attended in my life. The attendance was not very great, it is true; but we had some of the best bee-men and honey-producers that we have in the United States. Not only that, but I believe more bee-keepers, with their *wives also*, were in attendance than we often find. I am sure this is as it should be. The women got acquainted with each other, and the men got acquainted with each other. More than that, many of the women got acquainted with some of our leading men, and learned to love and admire them. I know this is true, because I heard them say so. I also feel certain that we men-folks, many of us, got acquainted with good women we had never known before; and although I did not hear them say so, that I remember, I am quite safe in saying *we* learned to love and admire these good women. You know I have said a great deal during the few years past, about the importance of getting acquainted with each other. This convention resulted like a great many others I have attended. Sometimes we got so well acquainted that we felt free to make expressions something like this; and it is just what a very dear friend of mine said to me: "Mr. Root, I want to confess, that, before I knew you and got well acquainted with you, I thought I didn't like you. You have some queer ways and notions that I didn't use to sympathize with; but since I have seen you face to face, and know and understand you, I have changed my mind." Now, although I have not said the same thing right out, I have felt it in my own heart a great many times. I want to tell you that any thing that comes up, be it at conventions or anywhere else, that makes us think *better* of our fellow-men is hopeful and should be encouraged. Uncharitableness grows of itself, without any effort to encourage it; but the spirit that "thinketh no evil" does not often grow without some encouragement and some hard work.

Our convention owed a vote of thanks to Dr. Mason for coming from a remote corner of our State to help us in our proceedings, and I guess the doctor *got* a vote of thanks a good many times during recesses and our other little social chats, even if it was not said right out during the proceedings. He is a large man every way—a man known and respected by the leading minds of our State; and in his large-hearted charity and fund of cheerful good humor, coupled with earnest, honest Christian principles, he is a bright example for a good many of us. I don't mean to say by the above that he is always smooth and yielding in every thing. That is not Dr. Mason at all. He thoroughly believes in every thing good, and just as thoroughly detests every thing bad. He knows himself, and he knows his influence too well to make a mistake in that direction.

Dr. G. L. Tinker, of New Philadelphia, also contributed much of value to our meeting. The doctor is not only a bee-keeper, but he is one of the finest workers, both in wood and metal, that we have in our State. He exhibited some beautiful samples of cases for sections, honey-boards, perforated zinc of his own manufacture, etc. Dr. Tinker is a firm advocate of sections open at the sides as well as top and bottom. He also gave us an account of his experiments with the shallow sectional brood-chamber. At present his decision is that we don't want them.

Mr. H. R. Boardman gave us so many valuable points in regard to the production of comb honey that the convention certainly owes him also a vote of thanks. A good friend told me at the Chicago Convention that he was surprised to find that I had made such an improvement, not only in wisdom and experience, but in my ability and readiness to impart to others what I know. Well, I can say the same in regard to friend Boardman. It did not seem to me that he could be the same man whom I knew some years ago. Many of our readers will remember that he is the man who has for years wintered his bees almost without loss. Well, he does this still; and he has been quietly at work, until he has his bees scattered here and there in different apiaries, amounting, perhaps, to 400 or 500 colonies. During this past season, when everybody else has been lamenting about the utter failure of the honey crop, he has secured enough to pay all expenses and a little more; and a great part of his crop has been *sold* for 20 cts. a pound, cash down. Now, friend B. is peculiar. He uses a frame about the dimensions of the Gallup; and instead of using cases he hangs to the wide frames, as he told us not very long ago. Well, these wide frames hold three sections wide and three sections deep, or nine one-pound sections in all. Enough frames are put into a hive to make a regular cube; and when he wants to make a hive two stories, it has two cubes, one on top of the other. I tried to reason with him in regard to the advantages of shallow L. frames when he wished to use hives two stories high. He admitted that the theory was very good, but he said that he could not discover that it was verified by actual practice. He even at times used the hive three stories high—the first one for the brood, and the two upper ones filled with sections. Said I, "But, friend B., you surely do not mean to say you find it just as well to put on a whole upper story containing 54 sections all at one time, especially if your colony is rather weak when the honey-flow begins?"

He declared he didn't find any bad results from so doing.

"But," said I, "the bees can not occupy this cube containing 54 sections, and so they must fill only as many sections as they can, working at a disadvantage on account of all this open space above and around them."

He assented, but still declared he could not discover in practice that it did any harm. I was somewhat astounded at this, as you may be, dear reader, but I saw at once a point in his favor. His bees always have room. Even with all his apiaries, it is not very likely that any colony will get their sections full, and be crowded for room to work to advantage, so as to hang out on hive during a honey-flow. He prefers the wooden separators; Dr. Tinker suggested the idea that one advantage wooden separators possess over tin is, that the bees could climb up the separators instead of walking over the capped comb honey, and soiling the white capping with their footprints. If the separators are tin, the bees would slip so much they would prefer to travel over the capped honey. The wood, however, gives them a better foothold than the smooth wax. If this be true, we get whiter and cleaner honey by the use of wooden separators than by using the tin separators.

At the Chicago Convention, Prof. Cook gave us one of his happiest talks in regard to the feet and legs of the honey-bee, with enlarged drawings. He showed us the apparatus the bee has for climbing either rough or smooth surfaces. The bee first tries his sharp claws; and if with them he can get a good sure foothold, all right. If, however, he is trying to walk up something very hard and smooth, like a pane of glass, he discovers that the claws are "no good," as the boys say. Well, what does he do now? Why, he throws out a sort of glutinous fluid, not from the palm of his hand, but from the palm of his foot, and this glutinous fluid adheres to the glass sufficiently to allow him to walk right up safely and rapidly. Let a bee walk up a very clean pane of glass, and then look carefully with a magnifier, and you will see these footprints, not unlike those made by the children, sometimes, across mamma's clean floor. Well, it is these footprints that soil and damage the appearance of our white comb honey, if left too long in the hive. Now, will our friends see if this theory is true in practice, that wooden separators give us whiter comb honey?

Friend B. also declares with Dr. Mason, that sections partly filled with empty comb the year previous are not inferior to full sheets of new foundation. Even though the Chicago Convention gave a vote so nearly unanimous on the above, they think it a mistake. Friend B. practiced hiving new swarms on empty frames, even before he got the idea from friend Hutchinson; and he has an original plan in connection with this, of continually cutting the new combs out of the brood-frames as fast as the bees build them in, even cutting them out once every 24 hours when the bees are building comb rapidly. This new white comb he fastens into the section boxes, cutting the pieces large enough to nearly fill the boxes if he can. If eggs have been laid in this new comb he lays it on the grass in the sun until the eggs have lost their vitality. The bees then remove them, and he gets the finest and most rapid work from these natural starters. He admits, however, that the honey is more likely to break down in shipping, than where thin sheets of foundation are fastened into the sections both at the top and bottom. I shall have to defer until another issue, mentioning the points made by our excellent secretary, Frank A. Eaton, Dr. Besse, C. E. Jones, A. A. Fradenburg, A. S. Goodrich, and several others.

To be continued.

GLEANINGS IN BEE CULTURE.

Published Semi-Monthly.

A. I. ROOT,
EDITOR AND PUBLISHER,
MEDINA, OHIO.

TERMS: $1.00 PER YEAR, POSTPAID.

For Clubbing Rates, See First Page of Reading Matter.

MEDINA, JAN. 15, 1888.

A righteous man regardeth the life of his beast; but the tender mercies of the wicked are cruel.—PROV. 12: 10.

I EXPECT to attend the York State Convention.

GLEANINGS AND A B C CLUBBED.

WE will club one year's subscription to GLEANINGS with a cloth A B C, postpaid, for $2.00; or paper bound for $1.75.

DON'T SEND ANY MORE BACK NUMBERS.

OUR notice for back numbers of GLEANINGS has brought us an avalanche, and we can not use any more at present. We can not, therefore, pay for any more after this notice goes out.

AT WHAT TEMPERATURE DO BEES FLY?

I KNOW exactly, for I have just been out this 6th day of January, and watched the bees which were pouring out of the hives in different directions. As the sun did not shine at all, and there was no wind, I had an opportunity of getting a pretty fair test. A few started out when the thermometer stood at 50°, but there was not a general flight until it stood at about 55. Had there been sunshine it would have made a vast difference; but as it was, they flew from entrances pointing to the north just as freely as if they were facing the south.

WHERE SHALL THE FIRST NEW HONEY COME FROM?

MR. EDITOR:—I sent you a bunch of roses and field-flowers during the holidays, as a holiday present. I see to-day many heads of white clover in bloom also. Grasshoppers and butterflies are sporting in the warm sun, and 20 bees per minute went into one hive, heavily laden with pollen. But little winter yet.

J. W. WINDER.

New Orleans, La., Jan. 8, 1888.

THANK you, old friend. The roses, etc., were somewhat dried up, but they were a curiosity for all that. Is it not unusually early for white clover, even in your locality? It seems to me you stand a good chance of being able to report the first new white-clover honey on the market, unless, indeed, some of our Florida friends can do a little better still. I should be very glad indeed to make you a visit just now if it were possible.

THE BEE-KEEPERS' REVIEW.

THE first number of the *Bee-Keepers' Review* has come to hand. A careful perusal assures us that our friend W. Z. Hutchinson has carried out the plan which he outlined in the advertisement which appeared in this journal. It is emphatically a review on the subject of bees. In the first issue, the subject of disturbing bees during winter is discussed by R. L. Taylor, E. M. Hayhurst, James Heddon, J. H. Robertson, H. R. Boardman, J. H. Martin, Eugene Secor, Dr. A. B. Mason, and others. The editorials are carefully written, and contain a good many valuable suggestions. Friend Hutchinson is a terse, able writer, and a practical bee-keeper. If he can carry out the plan he has outlined as well as he has done in the first number, his journal will surely fill a "niche" in apicultural literature. We wish him every success.

SPECIAL NOTICES.

GOSPEL HYMNS, WORDS AND MUSIC.

We have the following Gospel Hymns, not included in our book-list, which we desire to close out: Two copies Gospel Hymns No. 1, words and music, paper covers, 25 cts. each. Eight copies Gospel Hymns No, 3, words and music, paper covers, 25 cts. each. Four copies Gospel Hymns No. 4, words and music, board covers, 30 cts. each. The above will be 5 cts. each extra if sent by mail. Also 22 copies Gospel Hymns combined, Nos. 1, 2, and 3, words and music, paper cover, 50 cts. each. If sent by mail, 10 cts. extra. Besides the above, we keep regularly in stock Gospel Hymns consolidated, Nos, 1, 2, 3 and 4 in paper covers, 128 pages, words only, at 5 cts. each; by mail, 6 cts. The same in board covers, 304 pages, 20 cts. each; by mail, 23. The same in board covers, words and music, 75 cts. each; by mail, 85.

SECOND-HAND BARNES COMBINED SAW FOR $25.00.

We still have the Barnes combined foot-power sawing-machine, mentioned on page 810, Nov. 15, GLEANINGS, 1887, to dispose of. It is now at Oxford, Iowa. We had made arrangements with one of our customers to take it, but he has changed his mind and is making other arrangements, and we again offer it for sale. "The saw is a combined Barnes (worth when new $40.00), used three years, and is in perfect running order, with two saws and two mandrels; bought last summer all the running-gears new (drive-wheel and cogs, belts, etc.), making it virtually almost as good as new, except the saws, which are not good for much." This is the description given us of the machine, and we can recommend it as a bargain at $25.00. Of course, having been made three years ago, it is not the improved pattern now made by Barnes, but the old style. Still, a great many prefer the old pattern to the new, and would not buy the new if they could get the old.

THE "GRAND RAPIDS" LETTUCE.

I HAVE finally succeeded in getting half a pound of the seed of the above. For particulars in regard to it, see p. 953, Dec., 1887. We will at present offer it for sale only in 5 and 25 cent packages. With each package will be included full directions for cultivation, especially in greenhouses, given by the originator of the new variety. In our next issue we expect to give a nice cut of it. It is fully as desirable for outdoor culture as for greenhouses, and it is now about time that it be started, either in the greenhouse or in boxes in the window, or hotbeds or cold frames, especially if you want to get it on the market before lettuce is to be found which is ordinarily raised in the open ground. In fact, the way to make a success of this lettuce is to have it before everybody else has got hold of it. I paid Mr. Davis $15,00 for giving me full particulars in regard to raising lettuce, besides the *fifty dollars* I paid him for *only half a pound of seed !*

CONVENTION NOTICES.

The next regular meeting of the Stark Co. Bee-keepers' Society will be held in Grange Hall, Canton, O., Feb. 4, 1888. A full attendance is desired. Business of importance will be considered. M. THOMSON, Sec'y.

The fourth annual meeting of the Wisconsin State Bee-keepers' Association will be held in the Capitol building, in Madison, on Wednesday, Feb. 8 1888.

PROGRAMME.

President's Address C. A. Hatch, Ithaca.

Notes from American Bee-Convention—F. Wilcox, Mauston.

Relation of the producer to the commission merchant—A. V. Bishop, Milwaukee.

The Heddon hive, and how to use it W. H. Putnam, River Falls.

How to build a bee-cellar –D. D. Daniher, Madison.

How to get the best extracted honey—E. France, Platteville.

Comb or extracted honey, which?—F. Minnick, N. Freedom.

The nineteenth annual convention of the N. Y. State Bee-keepers' Association will be held at Bagg's Hotel, Utica, N. Y., January 17, 18, and 19, 1888.

PROGRAMME.

Tuesday, January 17, 2 P. M.

Reading the minutes of last meeting.

Reports of Secretary, Treasurer, and Standing Committees.

Discussion: "Does it pay to cultivate plants especially for honey?" Miscellaneous topics.

EVENING SESSION, 7 P. M.

Receiving members.

Discussion: "Does it pay to use full sheets of foundation in the brood-chamber?" Opened by G. M. Doolittle, followed by a general discussion as to the value of foundation.

Artificial fertilization—Prof. N. W. McLain, Aurora, Ill.

Wednesday, January 18, 9 A. M.

Appointment of the various committees.

"How can we organize an international bee-keepers' association that will best promote the interests of bee-keepers?" Essays by Dr. C. C. Miller and H. D. Cutting, followed by discussion led by Capt. J. E. Hetherington.

Miscellaneous matters.

AFTERNOON SESSION, 1 P. M.

Receiving new members. Election of officers. President's Annual Address.

Discussion: "Best management of the apiary to produce comb honey." Led by Julius Hoffman.

Discussion of questions from Question-Box.

Miscellaneous communications.

EVENING SESSION, 7 P. M.

Discussion: "How can we increase the demand for honey, and maintain present prices?" Led by L. C. Root.

"Marketing comb honey." Led by N. N. Betsinger, followed by a general discussion on "Marketing our products."

Thursday, January 19, 9 A. M.

Reading essay from R. F. Holterman.

Discussion: The coming bee for business.

Discussion: Scientific ventilation of bees in winter repositories. Led by P. H. Ellwood, followed by a general discussion on wintering.

AFTERNOON SESSION, 1 P. M.

Question: "How can we awaken agricultural-fair managers to the importance of our industry?" C, R. Isham.

Reports of committees. Miscellaneous business.

Adjournment.

G. H. KNICKERBOCKER, Sec'y.

DADANT'S FOUNDATION FACTORY, WHOLESALE AND RETAIL. See advertisement in another column. 3btfd

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I have been successful in the production of Comb Honey for the past ten years, and my little pamphlet "How I Produce Comb Honey," briefly explains the method I pursue. By mail, 5 cts. per copy; per 100, $3.00. My illustrated price list of General Supplies, Bees and Queens, free. Address,
GEO. E. HILTON, Fremont, Mich.

THE BEE-KEEPERS'
REVIEW!

For January is now out, and contains the following original articles: "Disturbance Not Necessarily Injurious," R. L. Taylor; "Bees are Summer Birds," E. M. Hayhurst; "Disturbing Bees in Winter," Jas. Heddon; "A Niche that Needs Filling," M. M. Baldridge; "Daily Visits no Disturbance," J. H. Robertson; "Bees Winter Well in a Swinging Treetop," F. Boomhower; "Keep the Bees Quiet in Early Winter," H. R. Boardman; "Continued Disturbance Injurious," J. M. Martin; "Light Not a Disturbance," Dr. A. B. Mason; "Disturbance Not Injurious, if Other Conditions are Right," Eugene Secor; "Bess Undisturbed by Light," H. D. Cutting.

Following the above come editorials upon: Price of the REVIEW—Wood or Tin for Separators—Is the Latter "Colder" than the Former?—"Not According to Nature"—Mr. Heddon and the REVIEW—Disturbing Bees in Winter Seldom Injurious—Temperature to be the Special Topic of the Next Issue—Unfinished Sections vs. Foundation—A Modern Bee-Farm.

After the editorials, room is given for the following extracts: "Modern Bee-journalism," M.; "Brine for Soaking Dipping-boards," M. M. Baldridge; "Less Afraid of Disturbance," Dr. C. C. Miller; "Injured by Passing Trains," G. M. Doolittle; "Stamping on the Floor Above a Bee-cellar," Dr. A. B. Mason; "Disturbing Bees Out of Doors," G. M. Doolittle; "Handling Bees in Winter," F. Boomhower.

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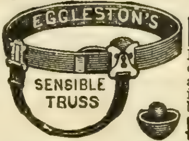

Has a Pad different from all others, is cup shape, with Self-adjusting Ball in center, adapts itself to all positions of the body while the **ball** in the cup **presses back the intestines just as a person does with the finger.** With light pressure the Hernia is held securely day and night, and a radical cure certain. It is easy, durable and cheap. Sent by mail. Circulars free. **EGGLESTON TRUSS CO., Chicago, Ill.**

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CONVENTION NOTICE.

The second annual meeting of the Southwestern Iowa Bee-keepers' Association will be held at the Court-house at Red Oak, March 6th and 7th, 1888. All bee-keepers are cordially invited to attend.
E. W. PITZER, Sec'y.
Hillsdale, Ia.

CIRCULARS RECEIVED.

The following have sent us their price lists:

Christian Weckesser, Marshallville, O., a 20-page circular of Italian bees, queens, garden-seeds, plants, etc.

G. D. Black, Brandon, Ia., an 8-page list of Italian bees, comb and extracted honey.

A. E. Manum, Bristol, Vt., a 12-page price list of high-class poultry, bees, etc.

E. L. Blake & Co., Peabody, Mass., send a 4-page circular of seed-drills and American hives.

M. H. Hunt, Bell Branch, Wayne Co., Mich., a 12-page price list of bee-keepers' supplies. The novel feature of this catalogue is, that friend Hunt purchased a printing outfit, set the type, made the display lines, and printed his circular himself. He writes, that he never spent an hour in a printing-office. For a novice, he did well. "But," he writes, "it was rather expensive." Next year he will do it cheaper.

Mrs. Lizzie E. Cotton, West Gorham, Me., sends a 16-page circular and price list. The statements she makes, and the prices she charges for the goods she sends out, forbid her being classed with regular supply-dealers. She still charges $20.00 for a colony of Italian bees in her Controllable hive, with her book, "Bee-keeping for Profit." We believe, however, she does all she agrees to.

A 20-page circular of bee-supplies for B. J. Miller & Co., Nappanee, Ind., was printed at this office.

Wants or Exchange Department.

Notices will be inserted under this head at one-half our usual rates. All ad's intended for this department must not exceed 5 lines, and you must SAY you want your ad. in this department, or we will not be responsible for any error. You can have the notice as many lines as you please; but all over five lines will cost you according to our regular rates. Of course, this department is intended only for bona-fide exchanges.

WANTED.—Bee-help for 1888. One man with experience and one wishing to learn the business. 300 colonies, 30 years' experience.
S. I. FREEBORN, Ithaca, Wis.

WANTED.—To exchange new Simp. hives for furskins, either red-fox or skunk. Address
A. P. SHARPS, Exeter, Luzerne Co., Pa.

WANTED.—To exchange Wheeler & Wilson sewing-machines (new) for honey, bees, or supplies. J. A. GREEN, Dayton, Ill. 20tfdb

WANTED.—To exchange bees in Langstroth or Simplicity hives, for disk-harrow and band seed-drill. I also want seed-catalogues. Address
W. H. PUTNAM, River Falls, Wis.

WANTED.—Correspondence on apples, potatoes, seed-potatoes, cabbage, onions, small fruit, and fruit and produce generally. Consignments solicited. Will quote market at any time.
EARLE CLICKENGER,
4tfdb General Commission Merchant,
117 South 4th St., Columbus, O.

WANTED.—To exchange sample sections, and price list of apiary supplies, for a two-cent stamp. Will also exchange supplies for foundation, and a few colonies of Italian bees, delivered at Clintonville, Wis. Address
2-4d W. H. COOK, Clintonville, Waupaca Co., Wis.

WANTED. — Correspondence with parties who have strawberry-plants and wish to exchange for red-raspberry-plants. E. CLICKENGER,
4-5d 117 South 4th St., Columbus, O.

WANTED.—To exchange our Price List of Bee-Keepers' Supplies, etc., for your name on a postal card. Address
4-5-6d JNO. NEBEL & SON, High Hill, Mo.

WANTED.—A position in large apiary for the coming season. Address
4d E. L. PRATT, Marlboro, Mass.

WANTED.—A bee-keeper to take charge of my apiary, on shares. ROBERT BLACKLOCK,
Kilgore, Boyd Co., Ky.

WANTED.—By an experienced man, a position as apiarist and queen-breeder. Have had an experience of 10 years, or as foreman of several apiaries. Address T. S. HALL,
Calhoun, Gordon Co., Ga.

WANTED.—A situation for the season of 1888, as assistant in apiary; 3 years' experience; New England or New York preferred. Address
A. L. TROWBRIDGE, Willimantic, Wind. Co., Ct.

WANTED.—Situation for 1888, by an expert bee-keeper. B. F. HOWARD,
Hoyt's Corners, Seneca Co., N. Y.

WANTED.—To exchange Gregg raspberry-plants for comb fdn., 1-lb. sections, alsike and white Dutch clover-seed. Address THOMPSON BROWN,
Cloverdale, Ind.

WANTED.—To buy or hire a small place, in a good location, for keeping bees; must be in the western part of Vermont, or eastern part of New York. F. C. FULLER,
Wendell Depot, Franklin Co., Mass.

WANTED.—To exchange B-flat cornet, made in Paris; two crooks, two straights, second-hand, in good order; case and instruction-book, for sections, fdn., or any thing useful to me.
GEO. W. MILES, Teepleville, Craw. Co., Pa.

New Orleans Apiary.

I will sell my entire apiary of 350 colonies of Italian bees, in good Langstroth hives, cheap, or any number of colonies, to suit purchaser. Unsurpassed facilities for shipping by river or railroad. Correspondence solicited. Address
4d J. W. WINDER, New Orleans, La.

HOW TO RAISE COMB HONEY. See Foster's advertisement on another page. 4-15db

WANTED.—To exchange pure P. R. cockerels, or eggs from prize-winning stock, for alsike clover-seed or ferrets. Eggs, $2.00 for 13 or $3.00 for 30.
45d B. D. SIDWELL, Flushing, Belmont Co., O.

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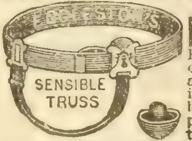

Has a Pad different from all others, is cup shape, with Self-adjusting Ball in center, adapts itself to all positions of the body while the ball in the cup presses back the intestines just as a person does with the finger. With light pressure the Hernia is held securely day and night, and a radical cure certain. It is easy, durable and cheap. Sent by mail. Circulars free. EGGLESTON TRUSS CO., Chicago, Ill.

HONEY COLUMN.

CITY MARKETS.

CHICAGO.—*Honey.*—The demand is rather light, and prices are barely steady; offerings liberal. We quote: White clover, small pkgs, 1-lb. sections, 16@18; same in larger pkgs, 2-lb. sections, 12@15. Dark, 10@12. *Beeswax.*—In moderate supply, but there is a moderate inquiry at previous prices. We quote: Good to choice yellow, 20@21; dark-colored, 15@17.
G. LASHER & SON,
Feb. 9. Chicago, Ill.

MILWAUKEE.—*Honey.*—This market continues dull and slow on comb honey, and may be quoted weak at former quotations, and really lower prices are a necessity to sell. We quote choice white 1-lb. sections, 18@19c; 2 lbs., 15@16; 3 lbs., 14@15. Dark and broken, not quotable. Extracted in fair demand. White in kegs and tin, 9@9½c; in bbls. and ½-bbls., 8½@9; dark and mixed, 6@7. *Beeswax.*—Nominal, 22@25.
A. V. BISHOP,
Feb. 4. Milwaukee, Wis.

ST. LOUIS.—*Honey.*—We quote our market on honey, light demand in small way. Comb, white clover, 1-lb. sections, 18c; good to fair, 14@16. Wild flower and buckwheat, 11@13. California white sage, 2 and 4 lb. sections, 12@14. Extracted honey, in cans, white clover, 8@9. Bbls., 6½@7. Southern, bbls., 4½@5½. *Beeswax.*—Prime, 20c; selected on order, 2@3c more.
W. B. WESTCOTT & CO.,
Feb. 9. St. Louis, Mo.

COLUMBUS.—*Honey.*—Honey is dull, and moving slowly at the present time; selling at 15@18, as to quality. Extracted honey in better demand, selling at 12@14c per lb. *Beeswax.*—None to speak of in this section.
EARLE CLICKENGER,
Feb. 8. 117 South 4th St., Columbus, Ohio.

ALBANY.—*Honey.*—Honey-market is quiet, prices easier all around, especially for medium grades of clover. Buckwheat sells best at the prices. Some more movement in extracted. Advise bee-keepers to put honey in mess-size sections, and sell early.
H. R. WRIGHT,
Feb. 9. 328 Broadway, Albany, N. Y.

CLEVELAND.—*Honey.*—Our honey-market continues very dull with but little demand, prices ranging from 16@18c per lb. for the best white-comb 1-lb. sections. Some call for extracted at about 9c per lb.
A. C. KENDEL,
Feb. 8. Cleveland, Ohio.

CHICAGO.—*Honey.*—The market has changed but little if any, from our last quotations. The offerings are large for the season, and considerable pressing is being done, which has a weakening tendency, but we are of the opinion that the best lots will be sold at good figures.
R. A. BURNETT,
Feb. 8. 161 So. Water St., Chicago, Ill.

DETROIT.—*Honey.*—Best white comb honey, in one-pound sections, continues to be quoted at 18@20 cts. Extracted, 9@10. *Beeswax*, 22@23c.
Bell Branch, Mich., Feb. 9. M. H. HUNT.

BOSTON.—*Honey.*—Honey is slow. Sales at 16@17 for 1-lb. sections. 14@15 for 2-lb. sections. Extracted, 8@9. *Beeswax*, 25.
BLAKE & RIPLEY,
Feb. 10. 57 Chatham St., Boston, Mass.

ST. LOUIS.—*Honey.*—Choice comb, 18@20; strained, very scarce; in barrels, 6@7½; extracted, in barrels, 5½@8. Cans, 8@10. *Beeswax*, 19½@20.
D. G. TUTT & CO.,
Feb. 9. 206 N. Commercial St., St. Louis, Mo.

NEW YORK.—*Honey.*—Honey is moving slowly. Fancy white 2-lb. sections are selling at 15@16; fancy 1-lbs. are selling at 17@18.
THURBER, WHYLAND & CO.,
Feb. 9. New York City.

NEW YORK.—*Honey.*—We have nothing new to report in the honey-market; limited demand, and a fair stock.
F. G. STROHMEYER & CO.,
Feb. 9. 122 Water St., N. Y.

Eaton's Improved
SECTION CASE.
LATEST AND BEST. Send for free catalogue. Address
FRANK A. EATON,
3d **Bluffton, Ohio.**

THERE IS MONEY IN IT!
Seventy-Five Colonies of Italian Bees
GIVEN AWAY
and capacity for 130, to any person who will buy a house and two acres of land for its real value. The bees and house and bee-house are in good order. Write for particulars to M. R. NICHOLS,
3tfdb Weaver's Corners, Huron Co., Ohio.

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WE make the best Bee-Hives, the best Sections, the best Shipping-Crates, the best Frames, &c.
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WANTED.—To exchange 125 P. R. fowls. Have bred carefully for five years. Am offering fine chicks for $1.00 each; per pair, $1.75. Eggs for hatching, 75c per 14. Will satisfy you.
MRS. C. E. HATCH, Kentland, Newton Co., Ind.

If you Wish to Obtain the
Highest Price for Honey
THIS SEASON,
WRITE TO HEADQUARTERS,
F. G. STROHMEYER & CO.,
Wholesale Honey Merchants,
17-4db **122 Water St., New York.**

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I have been successful in the production of Comb Honey for the past ten years, and my little pamphlet "How I Produce Comb Honey," briefly explains the method I pursue. By mail, 5 cts. per copy; per 100, $3.00. My illustrated price list of General Supplies, Bees, and Queens, free. Address
GEO. E. HILTON, Fremont, Mich.

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GLEANINGS
IN
BEE CULTURE.
DEVOTED·TO·BEES·HONEY·&·HOME·INTERESTS.
F.A. Whiting

Vol. XVI. **FEB. 15, 1888.** **No. 4.**

TERMS: $1.00 PER ANNUM, IN ADVANCE; 2 Copies for $1.90; 3 for $2.75; 5 for $4.00; 10 or more, 75 cts. each. Single number, 5 cts. Additions to clubs may be made at club rates. Above are all to be sent to ONE POSTOFFICE.

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REMOVING THE QUEEN DURING HARVEST.

ALSO SOMETHING ABOUT BEES AND BERRIES.

On page 810, 1887, friend Perkins thinks I would change my opinion if I could visit his place where are three acres of raspberries. I had nearly the same amount on my place at one time, friend P., and bees and berries go nicely together so far as the bees are concerned; but the trouble is, the busy time of each comes at the same time. Mr. Perkins says, "I can tend all three, bees, berries, and poultry, and yet have time to play." Yes, and so you could add blacksmithing and tailoring and cobbling, making six lines of business, "and yet have time to play," providing you do *little enough* of each. During the busy season, a man can take care of only so many colonies of bees; but there are other times when he has some "time to play." What is wanted is not something that will come just when his time is already full, but something to fill up his play time. In this view I think Mr. Perkins is making a success with poultry, but not with berries.

CAN THE QUEEN BE REMOVED TOWARD THE CLOSE OF THE HARVEST SO AS TO GET THE SAME AMOUNT OF SURPLUS HONEY?

Referring, friend Root, to your remarks on page 55, I have had considerable experience in this matter, but am not sure that I know much about it for sure and certain. I have taken away as many as a hundred queens in one season, from colonies when they were busily storing, and I never saw a case where I knew that they immediately slacked up in their work. For all that, there might have been a difference, for it is not an easy thing to look at a colony and say whether it is doing more or less than it did the previous day.

Although I am not sure that any immediate slacking up occurred, I think there are cases where the bees stored less some time after the queen was taken away than they would have done if she had remained. The fact that such men as Ellwood and Hetherington practiced taking away queens during basswood bloom is an argument in its favor. I do not know whether they still follow the practice. Those who favor the plan, argue something like this: A bee does not go to work in the field till it is 16 days old, which, added to 21 days from laying the egg to hatching, makes 37 days from the laying of the egg to the time of working in the field. Now, in localities where basswood closes the harvest, or even where the harvest continues three or four weeks later, no egg laid during basswood harvest can produce a bee that will gather any honey to put in the surplus apartment. But if the queen continues to lay during this 37 days before the close of harvest, and lays 1500 eggs per day, she will fill about 8 feet of comb. If, instead of 8 feet of brood, we had, by the absence of the queen, 8 feet of comb honey or its equivalent in sections, it will be seen what an addition we should have to our surplus crop—at least 30 or 40 pounds. But it is generally rather unsafe to rely on plans figured out on paper, without asking the bees what they will do about it. Actually put to the test, no such surprising gain is achieved. I think I can see some reasons against taking away the queen, and there may be reasons I do not see, as well as some reasons favoring the plan. From the minute a young worker gnaws its way out of the cell, it becomes an active factor in the workings of the hives. It helps to keep up the heat of the hive, and before many hours commences its duties as nurse and chambermaid. This sets free older bees that would otherwise be kept busy at housekeeping, and allows them to engage in field labor, and thus every young bee hatched out is practically an addition to the field force, although itself may never gather a drop of nectar.

But this holds good only for such bees as hatch during the honey-flow; for what profit is there in adding to the population at a time when all are consumers instead of producers? So, instead of taking away the queen 37 days before the honey-flow ceases, we make the time 21 days. Whether we gain or lose by having the queen absent during the last 21 days of the honey-flow is a question worthy of discussion and experiment. Is the mere presence of the queen a stimulus to labor under all circumstances, or under some and not others? Ditto brood? Some of my observations point in one direction and some in the other. With my present light I think I would not remove a queen unless to prevent or control the swarming fever, and I do not know that removal for such a cause is a profitable operation. C. C. MILLER.

Marengo, McHenry Co., Ill.

Friend M., you hit the point exactly that I would make, toward the close of your article. A queenless colony will, a great many times, go ahead very well. Especially is this the case with Italians, while they have plenty of unsealed larvæ. But my experience is, that, as soon as the larvæ are all sealed over, the amount of stores begins to decrease very fast, while colonies throughout the apiary, with a queen and every thing else all right, will keep on storing honey rapidly. This is an important matter, and we should be very glad to have facts from experience from those who produce honey largely; and especially should we be glad to have friend Ellwood tell us if he still practices removing the queen toward the close of the season, as you have put it.

PRICES OF HONEY.

EXTRACTED A STAPLE, AND HOW TO MAKE IT SO.

I NOTICE, on page 844, that Mr. Heddon, in concluding his article on "The Present Prices of Honey," says: "Honey is not and never will be any thing like a staple commodity; and the moment the price is run up, consumers at large give it the go-by." Of comb honey this is very true. It will always remain a fancy article, to say the least; but of extracted honey I think differently. Eight cents is a fair price for extracted honey; and where can you get a *good* article of syrup for less? As there is to be an attempt to get a "corner" on sugar, prices of sugar, molasses, etc., will very likely rise from 10 to 50 per cent more than present prices; so if the coming season should prove to be a good one for honey, I expect to see honey sold cheaper than any other sweet, excepting, perhaps, glucose. Being as cheap, if not cheaper, than sugar, molasses, syrups, etc., a large number of people who have heretofore used the latter will buy honey for that very reason, and in that way our product will gain favor with the masses; and very few, after using a good article of extracted honey, will want any other sweet where it can be obtained.

If we want our product to become a staple article we must produce a good article and place it on the market in convenient shape for both retailer and consumer to handle. Barrels are not to be recommended. Some smaller package must be used. The 60-lb. tin cans are excellent. Consumers can either furnish their own pail or other vessel, or the retailer can deal it out in water-proof paper pails, such as oysters, molasses, etc., are retailed in. If you prefer to put it in small packages for home trade, or to sell to the retailer, small tin pails, holding from 1 to 10 lbs., are most desirable; or, if something very nice is wanted, use a glass pail or bottle. Always label your goods, and say on the label just what it is. Don't label a package of buckwheat honey "White-clover honey." You may get a little more for that particular package; but any person who knows any thing about honey will keep his "weather-eye" on that label. But when folks get just what is represented they call for that brand every time.

When you have more honey than you can sell in your home market, and desire to sell to retailers, avoid shipping to commission men. Go yourself. Take a sample of the different kinds, and get your price for it. Never let them beat you down. Sell direct to consumer and retailer, and you get the profit the commission men would otherwise receive.

The honey must be well ripened before it is placed on the market. After extracting, it is an excellent plan to place it in earthen crocks holding about 50 pounds. Tie a rag over the top to keep out flies, dust, etc., and keep in a warm dry place for a few weeks at least. Do not extract from combs that are but partially sealed; wait till they are all sealed over. Again, do not extract from combs containing unsealed larvæ, because it is impossible to throw out thick honey without throwing out more or less larvæ or larval food, which can be quickly detected. If we want honey to become a staple we must produce a gilt-edged article.

Yes, sir, Bro. Heddon, honey *will* become a staple; and if it doesn't—why, I'll stand treat.

C. S. LEWIS.

Santa Monica, Los Angeles Co , Cal., Jan. 28, 1888.

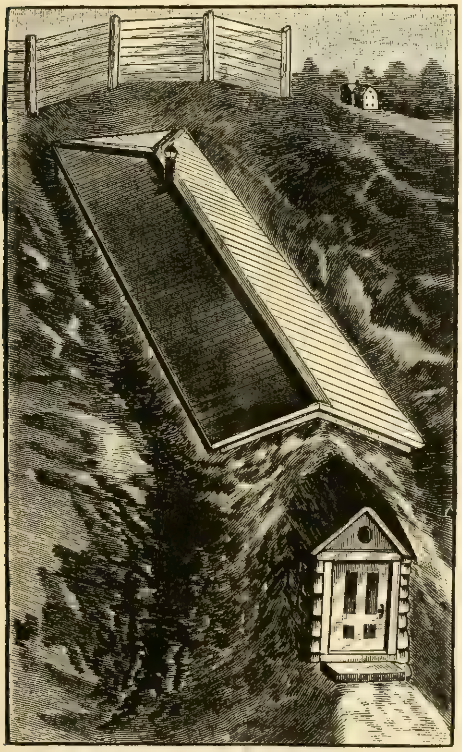
Friend L., the corner in sugar and molasses may possibly run it up 10 per cent; but I don't believe it can 50 per cent. The result of these corners, especially on the great staples, is only transient. The bubble must burst sooner or later. It is like damming up a brook because it bothers you when you are digging ditches. A dam is a very nice thing until it gets full of water; but unless some other channel is opened it will eventually overflow and burst, and then you will have a worst state of affairs than ever, until the water settles down to its normal state again. I do agree with you, that extracted honey, and possibly comb honey too, is getting to be at least a certain sort of staple.

DOOLITTLE'S BEE-CAVE, ILLUSTRATED.

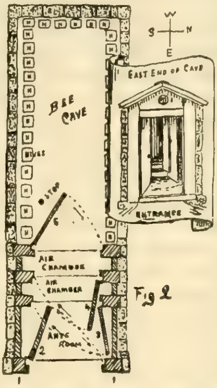
FURTHER PARTICULARS AS TO HOW THE ONE DESCRIBED ON PAGE 888 FOR LAST YEAR IS MADE.

AFTER the appearance of the article in the heading, it occurred to us that Mr. Doolittle's bee cellar, or cave, ought to have been illustrated with an engraving accompanied with suitable diagrams. In a letter to friend D. we expressed this opinion, and suggested that it would not be too late to have them yet. We accordingly requested him to make, or get some one who was handy with the pencil to make the two or three sketches, and send them to us, so that our engraver could reproduce them for these pages. Mr. D. complied, and the result we append below:

If the reader will turn to page 888 of GLEANINGS for 1887, and page 7 for 1888, reading those articles in connection with the following illustrations, I think all will be plain. Fig. 1 represents the outside appearance of the cellar, as viewed from the southeast. The ground should gradually rise from the foreground up to the fence, the back end of the roof at the peak being lower, or as low, as the ground opposite to it, on each side. The outer roof is boards (hemlock) battened. In Fig. 2, 1 represents the window in the gable end of the ante-room, so I can have a little light after I go in and shut the first door. In this ante-room (see Figs. 2 and 3) I light my candle, have the sawdust to carry in to spread on the floor, etc. In Fig. 3, 4 is the upper drain, or water-course, to carry off all surface water coming from the roof and elsewhere, it being made in a large scoop form, by taking dirt out to go between the two roofs, as illustrated in Fig. 1. The fence is shown in the rear. This causes the snow to drift on the roof. In Fig. 3, 6 shows the ventilator at the back end of the cellar.



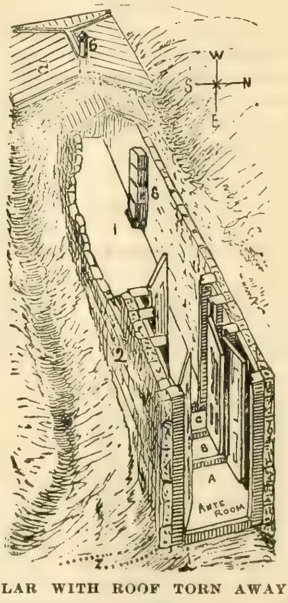
OUTSIDE VIEW OF DOOLITTLE'S BEE-CELLAR—FIG. 1.



GROUND-PLAN OF BEE-CELLAR.

Figure 2 represents the front view, also ground-plan of the ante-room and doors. 1 is the casing that the outer door hangs on and shuts against; 2 is the outer door which swings in and clear around against the south side of the ante-room; 3 is the first door toward entering the cellar; and in opening, it swings out and around the north side of the ante-room, finding the position when open as represented. 4 is the next door, two feet further in, which in opening also swings out and around against No. 3, as shown; 5 is the door entering the cellar; and in opening, it swings into the cellar around against the south wall, unless the cellar is full of bees, in which case a stop is so placed that it shall not hit the hives.

In entering the cellar I first go into the ante-room and shut the door, as I have explained; then I open Nos. 3 and 4, and step in to the last dead-air space, closing No. 4 after me, but allowing No. 3 to remain open. I now open No. 5, and quickly step into the cellar, closing 5 after me. Thus it will be seen that very little change of air can take place by my entering, especially when I say that all is covered overhead and on all sides with dirt, except the ante-room.



BEE-CELLAR WITH ROOF TORN AWAY—FIG. 3.

Fig. 3 represents the inside of the cellar. 1 represents the floor, or cellar-bottom. This is always quite dry, as there is a drain under the wall, and below the bottom all around, being 8 inches deep at the southwest corner, and 20 inches deep at the northeast corner, or outlet. 2 represents the south wall. The hives are put up along both walls and west end, putting one on top of the other ones four deep, as seen at 8; also by H, H, etc., in Fig. 2.

3, in Fig. 3, is the inner roof, which is made by using 2 x 6 stuff for rafters (which are one foot apart), with inch boards nailed on them at the top. 4 is the 3 feet of dry earth between the two roofs, 5 representing the outside roof. 6 is the ventilator, showing the two elbows, which effectually exclude all light. The hole in it is 6 x 8 inches square. 7 is the sub-earth ventilator, which is 4 feet deep, as far as may be, and 100 feet long; but, as I have said before, this and the upper one are always closed of late, winters, while the bees are in the cellar. As I have often expressed, I believe this the best underground arrangement possible for wintering bees, and have tried to make it all plain, so any person can build one who desires. The cost to me was not far from $80.00; but, of course, prices of lumber, stone, and labor, vary in different localities.

Borodino, N. Y., Jan. 7, 1888. G. M. DOOLITTLE.

ANOTHER BEE-CELLAR ON DOOLITTLE'S PLAN.

A LITTLE "LIGHT" ON THE LIGHT QUESTION.

IN GLEANINGS for Jan. 1, Mr. Doolittle describes his bee-cave, which is of much interest to me. I was glad to learn that there was a "big gun" like him wintering bees almost precisely as I am, although there are some differences as you will see. The dimensions of mine are 10 ft. wide, 20 long, and 6 deep. An oak frame was made to fit in the hole, and oak plank placed (up and down) on the outside of the frame. A ridge-pole was put through the center, lengthwise, well supported, at sufficient height to give the roof about a third pitch. Oak plank was also placed on the roof. The whole thing is covered with dirt to the depth of two feet, and on top of this there is about one foot of coarse stable manure, and then a board roof over the whole, to carry off the rain and melting snow.

There are two ventilators, one at or near each end. One runs from two feet above the roof to the ground, and the other just reaches down through the roof. They are made so the opening in them is about 3 inches square, and have a cap over them to darken them.

I have but two doors, an inner and outer, with about three feet of space between them. The cave is dug lengthwise with the side of the bank, and just a little below the brow of a little knoll (on the south side); so, you see, without artificial means I have the benefit of a snowbank all over my cave every winter when we have snow. This cave has been in use four winters, with fair to good success.

The winter of 1886 I placed 68 swarms in there, and brought every one through alive, but lost 7 by spring dwindling. This winter I have 93 in there, and on any of our cold bitter days the steam can be seen rolling out of those ventilators—an indication of life and prosperity within.

I have a thermometer hung down by a string from the top of a ventilator, so that at any time I can observe the temperature inside, without going in or making any disturbance. No matter what the temperature outside is, it varies only from 45 to 48° inside.

Last Saturday, the 21st, I dug through the snowbank, and went in to see how things were progressing. It was the coldest day we have had this winter—46° below 0. The temperature inside was 48° above. Not a drop of dampness could be seen anywhere—not even on the door. There was a low, contented hum that did me good to hear. I was satisfied with the appearance of every thing until I got to the back end, when I discovered the ground covered with dead bees, I should say equal to about four swarms—may be more. For a time I could not make out why they were dying off so at this end, and not at the other. I happened to think of light, and I turned down my lamp, and, lo! there was the cause—a streak of light was coming from the ventilator overhead. Faint though it was, it played the mischief. This streak of light may throw some light on the subject of the terrible mortality of bees we hear of this winter. I see the mice are at work among the hives, but I do not apprehend any damage to the bees, but rather to the cushions on top of them.

The honey-yield was comparatively good in this locality the past season. My report is, 2100 lbs. comb honey from 37 swarms, spring count.

Beldenville, Wis., Jan. 23, 1888. W. C. KING.

Friend K., you have given us exactly the report we wanted in regard to the influence of light in the bee-cellar; and I think that friend Bingham (see page 132) will have to admit that the light in this case drew the bees all together in a big heap, even if it did not cause them to come out of their hives. Now, it may be that they would have come out of their hives just the same, even if the cave had been kept in darkness; and in that case they would have been scattered all over the cellar. But I am inclined to think that that glimpse of light at a temperature of 48° was a bad thing. May be somebody else can help us in this matter. We are much obliged to you also, friend K., for your description and report of your bee-cave.

A LITTLE SCIENCE.

PROF. COOK TALKS TO US UPON THE SUBJECT OF POLLEN AS A FOOD FOR BEES.

THE following queries were sent in for the Question-Box; but as Prof. Cook was the only one among our corps of contributors for said department who could give any thing like satisfactory answers, we forwarded the questions to him, with the request to answer, which he has done. The first question reads as follows:

(1) *What are the chemical properties of pollen?*

Prof. Cook replies:

Pollen grains are really cells, and consist of protoplasm within a cell-wall which has two layers. Professor Goodale, who is excellent authority, says that the contents of pollen grains are, 1. Protoplasmic matter; 2. Granular food materials, such as starch and oil; 3. Dissolved food-matter, as sugar and dextrine. Sachs says that protoplasm, which, we know, fills the pollen grain, is rich in proteids or albuminoids. These substances, which are well illustrated in the white of an egg, the albumen of the blood, the casein (or cheese) of milk, are often called nitrogenous substances, as they contain nitrogen as well as oxygen, hydrogen, and carbon, which last three chemical elements are found without the nitrogen in starch, sugar, and the oils, or fats. In addition to the proteids, pollen also contains much water and several inorganic elements, such as the alkalies, lime, magnesia, phosphoric acid, and sulphuric acid. It would be impossible to give an exact chemical formula for pollen. Like our grains, which it somewhat resembles, the composition varies with the kind, and, probably, somewhat even in the same kind. Thus I find these formulæ for oats and wheat:

	Oats.	Wheat.
Water	12.7	12.5
Albuminoids	10.1	13.5
Starch	56.0	68.4
Oil	2.3	1 2
Fiber	16.6	2.7
Ash	2.3	1.7

While these are much alike, we see a marked difference, especially in the amount of oil and proteids. I presume pollen is richer in proteids than either of the above; and so, while flour will serve as a substitute for pollen for our bees, I dare say pollen is richer and hence better. As food is not perfect unless it contains all these different elements: Proteids, carbo-hydrates (starch and sugars), and oils, and as honey contains only the sugars, to any considerable degree, we see why our bees must have the pollen. This last supplies the proteids and oils. We also note how desirable that they have a nitrogenous food particularly rich in the proteid elements. As we could get along without much albuminous food, such as muscle, cheese, beans, etc., for a time if we exercised very little, and possibly be the better for it, so our bees may go for weeks—yes, months, in winter—when they are so inactive, with no pollen, and so with no proteids, except the very little existing in the honey, and possibly they are the better off.

(2) *What proportion of the food of the larvæ is pollen?*

The larvæ of bees are, I think, fed almost no pollen. The old view of Swammerdam and Dufour, that bees digest their food, and feed it, thus digested, to the larvæ, is still entertained, in part at least, by such able authorities as Mr. Cowan, Schonfeld, Planta, etc. (see *British Bee Journal*, 1887, p. 185). On the other hand, Leuckart and his able student Schiemenz believe that the food of the queen-larvæ, and most of that of the other larvæ, and that of the laying queen, is not digested food, but really a secretion from the large glands of the head of the worker bee. This view, which it seems to me is the more rational one, makes the food of the larvæ like milk, instead of chyle. We would not say we fed the young calf hay and oats because these formed the rations of the mother cow; so we do not say that pollen is the food of the larvæ because bees need it to form or secrete food for them. The cow must have albuminous food, or she can give no milk very long. So the bees must have the pollen to elaborate food for the larvæ.

Dr. Planta shows that the food of worker larvæ differs from that of queen and drone larvæ. Schiemenz showed that the worker larva, just at the last, was fed pollen, and, presumably, honey. Thus quite likely the composition of the food is thus changed. Thus we might say that the queen larva was fed profusely with exclusive bee-milk, while the workers were fed scantily of the same, which at last was adulterated with honey and chyle. Schonfeld shows that it is not impossible for the bee to regurgitate the chyle. Indeed, the pollen in the worker larva's intestine, just before it pupates, or before it sheds its alimentary canal with its last larval molt, shows that it is fed chyle in some part. As Schiemenz shows, there are good reasons to think that the laying queen is fed the same bee-milk.

(3) *Is pollen a part of the regular food of the mature bee?*

I have already answered this question. The imago, or mature bee, must have pollen, not only to nourish its own tissues, but the nurse bees are equally dependent on it to form the bee-milk, or secretion which they feed to the queen and all larvæ. If we feed a cow simply on starch or sugar, she would soon pine away, and her milk-glands would cease to secrete; so if we feed our bees simply on honey, they likewise, when active, would soon waste away, and, as all observing apiarists know, they could not care for brood. Pollen is absolutely necessary for bees when functionally active.

Agricultural College, Mich. A. J. COOK.

DRONES—SOMETHING IN REGARD TO THEM BY L. L. LANGSTROTH.

CONTINUED FROM PAGE 82.

SINCE writing my last article I have had the pleasure of seeing the first volume of Mr. Cheshire's admirable contributions to the Physiology of the Honey-Bee. Without defining the time when the drone is disposed to mate, Cheshire demonstrates, microscopically, that it must be at least several days old; and my observations show that sexual desire comes much later.

Mahan, as stated in my work, first made the important observation that drones, leaving the hive to mate, have a large supply of honey, which is found on their return to have been almost entirely consumed. I failed to ascertain how many marital excursions drones would average in a single day; but as they are often flying about three hours in favorable weather it is probable that they make three such trips at least. To do this they must consume twice as much honey as a swarming worker that carries off in its honey-sac almost a week's supply. The importance of preventing any overproduction is therefore obvious without any further comment. Let me here make some suggestions to those who aim to exclude all drone comb from most of their stocks. I say *suggestions*, for, after having been precluded by sickness from the practical management of bees for most of my time during the past 15 years it would ill become me to speak in too confident a manner.

In limiting the production of drones to just as few as we think will be needed for the fertilization of our queens, may we not err against that wise precept, "There is that withholdeth more than is meet, but it tendeth only to want"? It is easy to take for granted, that every bee in a healthy populous colony will do all that it can to enrich its home, even in the entire absence of any drones; so it is easy to assume that every worker in an artificial swarm will work just as well as it would in a natural one; but who, after a large experience with both methods, can deny that, for the production of comb honey at least, the natural swarm has that spur in the head which it never gets from our artificial processes? Is it not reasonable to think, that, for its highest prosperity, every colony of bees should be in a normal, that is to say, a natural condition? What can be more certain, than that strong colonies with few or no drones, in the very height of the honey-harvest, when such colonies show that they crave them so much, are not in a condition which stimulates them to do all that they are capable of doing? Their owner may know that, in the apiary, there are drones enough for all needed purposes; but how is he to impart this information to his droneless colonies, when, by the fiat of the Creator, every healthy stock seeks to be in a condition that would be best for it, if there were not another family of bees on the face of the whole earth? So far, therefore, from grudging to any colony a goodly number of drones, I prefer to see that one-third of one central comb in each stock hive has choice drone-cells.

I will conclude this article by giving some facts which show that, to ensure the mating of queens, many more drones seem to be needed than are commonly thought enough.

During the period of my observations in 1885, a drought had so cut off the secretion of honey that I had no reason to suppose that any drones could be found for the mating of my queens, except such as I had bred, and kept alive by daily stimulative feeding. For over two weeks I had more than a dozen young queens which flew nearly every day, and some of them, I knew, made several excursions on a single day. I had over two hundred drones, and yet only one of those queens laid any eggs. When the weather became too cool to expect any favorable results, I found, by dissecting the other queens, that none of them had mated; yet when my apiary was largely devoted to queen-breeding, and I had thousands of drones, I had good success at the same season, under circumstances in no respects more favorable. L. L. Langstroth.

Dayton, Ohio, Feb. 10, 1888.

Friend L., most of us decided, years ago, that we had better leave a little drone brood in every hive, unless it be some colony that, for particular reasons, we desire shall not rear any drones whatever. We may not have come to that conclusion exactly in the way you put it, but I have no doubt that you are correct. It certainly is true, that it is worth something to have the good will of the bees as well as to have the good will of your hired man or anybody else; and I have often thought that we could not very well dispense entirely with natural swarming without losing part of the energy and good will of a colony, that we desire so much.

THE OHIO CENTENNIAL EXPOSITION.

WHAT THE BOARD OF DIRECTORS PROPOSE TO DO FOR BEE-KEEPERS.

FRIEND ROOT:—I have just received the following from the Secretary of the Board of Directors of the Ohio Centennial Exposition:

> *Dr. A. B. Mason*:—Your suggestion as to a bee-house was favorably received by our Board, and the premium first submitted by you was approved and adopted, minus the third premiums.
>
> You are kindly requested to submit a plan of house for apiarian exhibit, and, so far as the Board may have funds, they are disposed to encourage that exhibit. Yours very truly,
>
> Columbus, Feb. 7, 1888. L. N. Bonham.

You remember that the State Bee-keepers' Association, in convention at Columbus, last month, appointed yourself, H. R. Boardman, Dr. Besse, and myself a committee to prepare a premium-list, etc., for the Exposition; but you and Dr. Besse had to leave before the list was completed, and Mr. Boardman and myself did the best we could with it and called on the Director-General with it. We had prepared a list, offering four premiums on most of the exhibits, aiming to bring the amount within $500. The Director-General assured us that he would do all he could for us with the directors, but feared they would not feel like going beyond $300 in premiums, and then put us up a building; so we left off the fourth premium, and the Board has cut off the third, and the amount of premiums offered is about (I have forgotten just the amount) $320.

I don't know how large a building to plan for, and I wish every one intending to make an exhibit would at once send me a letter or postal card, stating how many square feet of floor-space they will occupy. It is intended to have the building so arranged and prepared that comb honey can be displayed without the crates, and still be safe from injury by bees, and so that visitors can not injure or appropriate it to their own use without the consent of the owners.

The Exposition is to open Tuesday, Sept. 4, and close Oct. 19, being 40 week days, Sundays excluded, and is to be open day and evening. The grounds will be open 90 days before the commencement of the Exposition, for the admission and arrangement of exhibits.

I have been appointed superintendent of the Apiarian Department; and if any one desiring information or a premium-list will write me I shall be glad to reply and send a premium-list as soon as published; and I will also try to furnish them with a complete prospectus of the Exposition.

Auburndale, O., Feb. 10, 1888. A. B. Mason.

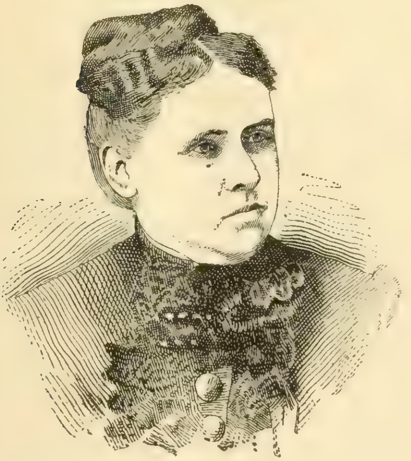
I will explain to the readers of Gleanings who are not already familiar with this matter of the Ohio Centennial, that the people of the State of Ohio propose to have this Exposition on the State Fair Grounds at Columbus, on the dates given above, and our State expects to show the world what she is able to do, or, rather, what she has done, in the different industries. Exhibits are to be made illustrating the state of affairs 100 years ago, as well as at the present time. For instance, plow-makers are to submit, side by side with their latest and best, such a plow as was in use 100 years ago. Further, we are to have exhibited an old log schoolhouse, with benches and desk arranged as they were a century ago.

Well, we bee-keepers are expected not only to exhibit the bee-fixtures of 100 years ago, but we are also to show our industry up to the present time. The Home of the Honey-bees has promised to exhibit automatic machinery for making sections; also a variety of things used about hives—comb foundation, and whatever else will be interesting, not only to the people of Ohio, but of other States. The sons and daughters of Ohio pride themselves, I believe, that they can do almost any thing that other folks can, and hence propose to compare notes.

MRS. MAHALA B. CHADDOCK.

A BRIEF SKETCH OF HER LIFE, BY MRS. LUCINDA HARRISON.

THE subject of this sketch was born in Grant County, Ind., Dec. 15, 1844. Her progenitors were Scotch, and distinguished for their great strength and endurance, her maternal grandfather at one time lifting a bedtick filled with wheat. When she was six years old she met with an irreparable loss by the death of her mother. Her father, John Pettay, being a poor man, the children were "put out," and by the vicissitudes of fortune she reached a haven of rest in the home of a family of Friends at Missinnewa. Here she became fired with the ambition of becoming a teacher, and bent all her energies to that end. She attended school from seven to nine months in the year, earning her board and clothes until she taught her first school, which was a subscription one, when she was fifteen. She attended school one winter more, and then commenced teaching in the public schools, which she continued to do until she married, at the age of twenty-two, John Chaddock, prominent farmer of Fulton Co., Illinois.



MRS. MAHALA B. CHADDOCK.

Since her marriage (with the exception of a few years of early married life) she has lived on the same farm. In 1872 she hived a runaway swarm of black bees, which had clustered upon a peach-tree, and this was her first start in bee culture. I was then writing bee-letters to the *Prairie Farmer*, and Mrs. Chaddock was a contributor to that paper, under the *nom de plume* of "Hail Columbia." She wrote to me, asking some questions about bees; and when I had read GLEANINGS I would send it to her to read, and return. She became a subscriber and a contributor. I sold her an Italian queen in 1874, and she Italianized her apiary. Her apiary is not large, as it has never numbered more than 30 colonies, but she has sold bees nearly every year, and is now wintering 17 colonies.

During the hard times of 1873 to 1878, when our national statesmen (?) were reaching resumption, through contraction, of specie payment, and nearly "squoze" the life out of the industries of our land in so doing, many a poor farmer went down under a blanket mortgage, and tramps filled the land. Mr. and Mrs. C. worked hard and almost unceasingly to free their farm and fair home from a heavy debt which hung like a dark pall over it. At this time, I think, Mrs. C.'s energy, coupled with her great desire to get out of debt, led her to overtax her strength. In the fall of 1878 I visited her, driving there with my horse and buggy, the distance being sixty miles. It was dark and raining when I reached her pleasant home, and I was weary with my drive; but it was soon dispelled by the cheery welcome I received from her and her excellent husband. During my stay I examined her apiary, and soon saw that it was well cared for, and the whitest of comb honey graced her table. I never ate finer canned peaches than at her table, which were sweetened with honey. At the time of my visit she was a woman of splendid physique, abounding in health and strength, and said she enjoyed taking her ax and cutting up trees after they were felled. I thought I never saw a person possessing equal magnetism. In 1876 she took a sick sister-in-law to Dansville, N. Y., to a sanitarium at that place, and also visited the Centennial at Philadelphia. While at the "Home on the Hillside" she made the acquaintance of Clara Barton, who has a world-wide reputation for philanthropy and good will to all mankind. When Miss Barton, as president of the Red-Cross Society, steamed down the Mississippi in 1884 to relieve the distress caused by the flood, she invited Mrs. Chaddock to accompany her on board the steamer "Mattie Belle." Miss Barton used to call Mrs. C. her "child of nature."

Mrs. C., by her energy and varied abilities, is a fair type of the American country-woman, a class peculiar to this land, and scarcely possible in any other. That she may regain her former health and strength, and that there may be many years of usefulness in store for her, is the sincere wish of her friend,— MRS. L. HARRISON.

Peoria, Ill.

Mrs. H., we owe you a vote of thanks for your excellent sketch of our friend and contributor, Mrs. Chaddock. I do hope, as you say, that she is a fair type of our American country-women. She is a peculiar type, it is true; and several times our new contributors, before they got acquainted so as to understand her as her friends understand her, have complained some. But it really does me good to see somebody so intensely original as our good friend Mrs. C. God didn't intend us to be all after one pattern; and these gifts that have been vouchsafed to us should not be repressed. Whatever the gifts are, they should be chastened and subdued by Christ's love; but let us not repress them. Mrs. Chaddock has, I am sure, been the means of doing a great amount of good, for she has a peculiar way that enables her to do what you and I and everybody else would fail in doing; and to illustrate what I mean, I think I can do no better than to stop right here and give a sample of her work and her manner of working, in the terse little article that follows this one.

ADVICE TO HUSBANDS.

HUSBANDS, BE GOOD TO YOUR WIVES WHILE YOU AND THEY ARE ALIVE.

I WONDER how many of the readers of GLEANINGS are reading Talmage's sermons to the women of America. Somebody sent me a paper containing his sermon, "Marriage for Worldly Success, Without Regard to Character," and I think it one of the best sermons that I ever read. There is one of the wittiest sentences in it that I ever saw in a sermon, and it is a truth at the same time. I wonder at any preacher having the courage to say it. However, Talmage's sermons are to women who are *not* married: mine are for husbands.

A few years ago I stood by a young man at the open grave of his young wife. I have been at many funerals; I have seen the sorrow of wives for departed husbands; the sorrow of children for a loving mother; the sorrow of a lover for his sweetheart; the sorrow of brothers for an only sister, and the sorrow of a mother for her babe; but never have I witnessed such sorrow as this. It was the kind of unreasoning sorrow that makes a man want to put a bullet in his brain or through his heart. Then after the funeral he talked to me—talked as I never heard a man talk before. I tried to stop him; he said he must talk to somebody; then such an upbraiding, such a self-lashing, no man ever gave himself before. He wanted to die; he was not fit to live; he called on God to witness that he had treated his wife like a brute; how he had gone out of his way to tease and torment her; had found fault with her cooking when there had really and truly been no fault to find; he had accused her time and again of being wasteful when he knew in his heart that she was an economical and saving woman; that he had—here was the crowning stroke of all—had accused her of infidelity to him, just to taunt her and break her spirit. I let him talk himself out. Then I said, "I knew all this before; and now I want you to promise me two things: That you will put away all thoughts of suicide. A man with six little children has no right to kill himself, however much he may wish to die; and that you tell no one else what you have just told me. It can do no good to tell it to the neighbors for them to gloat over; so, what is the use?" He promised, and now he is married again, and here is the miracle—a better husband was never seen than that same man. His last wife is not so good a cook as his first, but he never finds fault with her cooking; the babies cry now, just as they did then, but he is never cross; there are dark days, and days when the wind is in the east, but he pays no heed; he goes quietly on his way, good humored, and *looking over* a thousand little things. When I see him I think, "What pity—what a great, *great* pity, that he did not know how to conquer himself before!" The time for a man to be good to his wife—to be on his good behavior—is when the children are little—when the wife, with a child or two clinging to her dress, and another in her arms, is trying to do her own work to save the money a hired girl would cost; then is the time a husband needs to put his opinions about cooking and housekeeping out of sight; take the hat from off his head and the shoes from off his feet, and say, "Lord, Lord, what wilt thou have *me* to do?" for the place on which he stands is holy ground. MAHALA B. CHADDOCK.

Vermont, Ill.

Amen, Mrs. Chaddock! May God help us to do exactly as you say, in this matter. The Bible says, "Thou shalt love thy neighbor as thyself;" and when that neighbor happens to be a man's own wife, it would be sad indeed if he could not fulfill the command. Your article calls to mind a sentence or two that Mrs. Root cut out of *Seedtime and Harvest*. The talk, however, happens to be to wives; but as it strikes on the same point, I think it will fit nicely right here:

> You would despise yourself, if, tossed into a great sea, you make no struggle for a boat, a buoy, or the shore. So, when you find yourself almost overwhelmed with worries and care, and the steak is burning, the baby fallen out of bed, and your husband suddenly wants a button sewed on—hold the babe with one arm, lift the steak with the other, and tell John to bring you a needle and thread. Say no more. There are times when silence is not only golden but diamonds, and this is one of them.

Now, then, my point is, that a husband who can not take in the state of affairs at such a time, and behave himself as if he were really standing on "sacred ground," as you put it—well, he needs thorough, sound conversion.

WOMAN'S WORK.

WHAT SHALL WE DO TO BREAK THE MONOTONY OF IT?

FRIEND ROOT:—Did you ever think how differently men and women, particularly those who live on farms, spend their evenings? The good mother is rarely found without some work in her hand. Little children, and big ones too, make lots of mending. The little stockings need darning, or some fingers will be cold to-morrow, if those mittens are not done. After supper there are the dishes to do up, and preparations for breakfast. It seems almost impossible for the good wife and mother, with little children, to get any time, even evenings, to read. How is it with the husband and father? Why, as a rule he sits down after supper, without a care, and enjoys his paper or his books, or chats with a neighbor who comes in. Now, isn't this about true, and isn't it entirely wrong, that man's work should stop three or four hours before woman's, and that, meanwhile, he should be filling his mind with useful information, or getting choice entertainment that is denied to his wife?

To be sure, this is common custom, and custom makes law; but it doesn't make right. Woman's work, in its endless monotony, is as hard as ours; and there is no justice in "man's work being from sun till sun, and woman's work never done." I do not see how a thoroughly Christianized man can sit down and selfishly enjoy himself, while his equally tired wife is drudging on. There is a little of the old barbarous idea that women are mere slaves remaining there, if not in thought, certainly in practice. If every mother who has been killed by this never-ending, never-changing drudgery, could have it plainly so stated on her tombstone, wouldn't there be a stir in this country? What is to be done about it? Every good, true husband, after his attention is once called to it, will see that some remedy is found. It may be by buying more things ready made, or ready knit, and refusing to let his wife work at what she can not make three cents an hour, perhaps. It may be by getting her needed help, or, if they are too poor for any other way, by taking hold and helping her at work that must be done.

At an institute this winter I had the pleasure of hearing a paper read by a farmer's wife, a quiet little lady. She was so thoroughly well posted and well read, as shown by what she said, that I was much surprised. I was invited home with them, and there drew out the secret of it all. She had an intelligent husband, three small children, and did her own work; but all through the long winter evenings, while she was busy with her work, her husband had read aloud to her, for their mutual instruction and pleasure. This had been done all through their married life. Now, here was a man who was a man indeed; or was the praise part due to the wife? I noticed a quiet twinkle in her eyes when she told me there was nothing like beginning right with a man. While he was ready to fall down and worship her, she got the good habit well fixed on him. I hope the young people who read GLEANINGS will take a hint from this. It certainly is a grand idea. The wife's labor would be lightened if her mind were busy with what her husband was reading.

But, how about us older ones? I am afraid we shall have to arrange so our wives will not need to work evenings, and then let them read for themselves. Not having been brought up to it, I am afraid we should not make out well at reading aloud.

I am sorry enough that I did not begin that way; but now it is too late. For years I have insisted that my wife should not do any work after supper. She generally minds, but not always. I do not want to be a ten-hour man with a sixteen-hour wife. God gave each of us minds, and intended, doubtless, that we should each spend a reasonable amount of time in their improvement, and in enjoying life, not that one should do all of that and the other be a mere household drudge.

Have you ever noticed, friend Root, how many men there are who do not think of taking their wives with them when they go away anywhere? They forget how terribly they need a rest, and something new to look at and think of. Are their wives so overworked and worn out that they are ashamed of them, or have they got into the way of neglecting them, and it is only mere thoughtlessness? Sometimes the former, but usually the latter, I think. Let every married man who reads this stop and think if he takes his wife with him as much as he ought to, as much as he did when he was first married. If not, why not? It is your simple duty, and it ought to be your pleasure. You say, perhaps, she does not care to go. Well, how did you ask her? As politely, and as though it would be a pleasure to you to have her, as you did in your courting days? Now, didn't you say something like this? "Wife, I will take you along if you want to go," with a tone of voice that says plainly you rather hope she won't? Why not say heartily, "Come on, wife; I should not enjoy it at all without you"? The more she stays at home, the less she will care to go; and still the more she needs the change. When you get her out, act so that common people will say, "They haven't been married long; you can see that plainly enough." Then I will warrant she will enjoy it, and want to go again.

I have felt badly this winter, several times, to see an audience of two or three hundred men, almost without a lady, at our institutes. There is something wrong there. Where the audience is half ladies, the speaker can feel the difference almost before he opens his mouth. I remember several years ago a farmer took me home from an institute, to dinner. He had added farm to farm until worth a hundred thousand dollars. We had a good dinner, but the tired-looking wife at the head of the table spoiled it for me. As I was leaving the house I said to her, "Can you not get out to our meeting this afternoon?" She replied, "I do not see how, as I have not been asked." Her husband then said, "Oh! Mary doesn't care much about getting out," and hurried me off. I had a subject that afternoon that gave me the chance, and some strong words were said for his benefit that were not in the prepared paper, but which I couldn't keep back. It makes me angry now, just to think of it. I have never seen the friend since; but I pray to Heaven that he may have stopped the mere accumulation of dollars, and given Mary the rest and some of the enjoyment he could so well afford. If he has not, she has probably gone to her long rest ere now, or else her mind has given way from the endless monotony of her work, and she is one of the numerous thousands of overworked mothers who people our insane asylums.

In conclusion, I want to tell you of one of the best compliments I ever got. Friend J. H. Seymour, now our County Treasurer, once invited me to come to a political meeting. "Is it a place for ladies?" I asked. "Certainly," he says; "if it hadn't been, I shouldn't have asked you; for I know you wouldn't come to town without your family."

Hudson, Ohio, Jan. 14, 1888. T. B. TERRY.

Friend T., if it had not been for your work in the institutes, very likely you could never have written the above words. God has called you to take up this matter in behalf of the poor overworked women at the head of our farmers' homes. There are women, I know, who can speak for themselves, and who do speak for themselves; but there is a large class who stay at home, as you tell it, and give up, and go down to their graves without ever discovering how much happiness there is in store for them if they were once induced to get a little more among the world and among people. You know how heartily I am in sympathy with you in all this, from my reply to your last article on page 87, last issue. In fact, it made me smile to think how intently I had been considering this very problem. If our readers have forgotten it, will they please turn to the page above mentioned? God has placed us here on this earth—both men and women—to be social creatures; and a curse falls upon us when we neglect to go out among people and interchange ideas with our fellow-men. Reading good books and papers is well so far as it goes; but it can never take the place of these face-to-face meetings—this matter of forming friendships and intimate acquaintances with the good people of the world. It is Satan who whispers to us that the world is all a deceitful show. The world is a good deal what we make it, and there is ten times more danger of our thinking too ill of our fellow-men than too well of them. Why, it fairly makes me shudder when I think of the different times in my life when I have almost decided to stay at home and not go out in public. May God forgive me, and may my fellow-men forgive me, for the many years in which I held aloof from conventions and institutes. Now, a man can choose for himself to go or stay at home; and it is certainly his place to exert himself to get his patient, hard-working partner to accompany him. By all means tell your wife, when you invite her, that you would not enjoy going without her, as you put it; and when you say it, tell the truth. You ought to be ashamed of yourself, if it is not true. Who is there among us who has not, away back in the days of courtship, said in his heart, if not out loud, "Dear Mary, I could not be *hired* to go unless you go too?" At the Chicago Convention I was greatly pleased to see the smiling face of Prof. Cook's good wife, and Katie and Bertie too, close by. Their happy faces were a rebuke to me when I thought of my wife at home. I thank God from the bottom of my heart that she is now ready to go to any convention that comes along; and I think she will go, too, without any coaxing or urging, unless she backslides.

EXTRACTED HONEY, AND BEST METHODS OF MARKETING.

AN ESSAY READ BY DR. A. B. MASON AT THE OHIO STATE CONVENTION.

IT has been said, that the tendency of the times is toward each one becoming a specialist; and as the struggle for success becomes greater, each one feels that every force must be husbanded and every effort made to accomplish the desired result; but, is it true that the greatest comparative success in bee culture will be attained by the specialist?

Some of you know that I do not get as large a surplus of honey as many others; but that is no evidence that I don't know how to get all that my field furnishes. My locality is not favorable to large yields of honey, for, as I said at the Detroit Convention two years ago, there is a large city on one side and a wilderness on the other; at any rate, the soil is not favorable to the production of white clover; and linden, except a few trees, is not within the reach of my bees; but there are large areas of boneset, goldenrod, and asters, near by, and the three combined have never furnished my bees sufficient honey for winter stores.

If I am not mistaken, extracted honey has been in use over twenty years, and its desirableness for table and other uses, when compared with comb honey, has been fully established; and I believe an Ohio man, none other than our friend A. I. Root, was among the first, if not the first, to produce it in America.

Many people know the excellence and beauty of first-class comb honey, which needs no praise; but a first-class article of extracted honey is something with which most people are not familiar, they never having seen its crystal beauty, nor caught its delicate aroma, and never tasted its delicious flavor as gathered from the flowers of forest and field. When served upon the table it makes a fine appearance, and, to many, "nothing is better for breakfast than hot cakes and honey." It can be poured upon them till they "fairly swim in luscious sweetness." If our table is ever set for a meal, and the pitcher of extracted honey is left off, some one of the family is sure to say, "Please pass the honey." We have no use for honey in the comb, except when we want to show off for company, and even they frequently prefer the fine, richly flavored extracted article.

The aim should be to produce honey for the masses, for those who can not afford to pay for luxuries.

"A land flowing with milk and honey," both being very nutritious and strengthening, was promised to and was desired by the Jews as the "ne plus ultra" of good things. When properly ripened, white clover, linden, alsike, alfalfa, and some other honeys, have a sparkling clearness, and the flavor is exquisite, and, like other kinds, when candied are free from any liquid portions; and I have no doubt that such honey is generally really nicer than much of the well-capped white comb honey placed upon the market; and if all the extracted honey offered for sale were as thoroughly ripened as is comb honey, the latter would be almost driven from the market.

Is it not a fact, that extracted honey is depreciated in price mainly because its quality is inferior to comb honey, and is inferior because it is not properly ripened, or different kinds have been mixed, thus destroying their distinctive flavor? Each kind should be kept by itself, and so retain its distinctive aroma and flavor. Well do I remember how delicious the honey was that we used to get from bee-trees on the home farm in the east, in my boyhood days. We didn't know what kind it was, but now I know it was linden. To secure plenty of well-ripened honey it will be necessary to have strong colonies to gather and ripen it, and it should be extracted when it can be done to the best advantage of the apiarist and the bees. In the production of such honey it is often necessary to leave it in the hive with a populous colony for some time. When this is not convenient it should be as thoroughly ripened artificially. Many bee-keepers think honey must be sealed to be ripe. This may be true some seasons, and in some localities, but I am sure that it may be sealed before it is ripe, and it may be ripe before it is sealed.

You are all aware that there has been a great deal of discussion as to the proper time for extracting, some claiming that it saves honey and time to extract it before it is sealed, and that it is just as good when artificially ripened as when ripened by the bees; while others as earnestly contend that it should be well sealed before being extracted. It seems to me, although I have claimed the opposite to be true, that honey ripened in the hive, whether sealed or not, has a richer flavor, and possesses a finer aroma, than that ripened artificially.

To have plenty of bees, good queens are a necessity; and to give her room to "spread herself" and deposit eggs according to her ability, large hives are needed. For several years I took my surplus from the brood-nest of eight-frame Langstroth hives; but owing to their small size I had to extract often, and sometimes the honey was not properly ripened; and I am thoroughly convinced that an eight-frame Langstroth hive is not large enough for accomplishing the best results in securing extracted honey, although it may be the best for the production of comb honey.

As soon as the colonies are strong, whether in small or large hives, and the bees are building new comb at the top of the frames and in other parts of the hive, put on the surplus story, filled with empty wired combs, if you have them; if not, use full sheets of wired foundation, putting one or more combs of brood from the brood-nest, after having extracted the honey in the super, supplying the place of the comb of brood with foundation.

If it is intended to fully ripen the honey in the hive, and it requires sealing to be ripened, and the honey-flow continues, the super should be raised, and another, prepared as before, put under it as soon as the combs are pretty well filled, and before the bees are in the least crowded for room, and the process repeated as often as necessary; and when the yield from that particular source has ceased, and the honey become thoroughly ripened, all surplus should be extracted, and every thing put in readiness for the next flow. If it is intended to ripen it artificially, another super will not be needed, and the surplus honey can be extracted at the convenience of the apiarist, but always before the bees are crowded for room.

"Judicious tiering," some one has said, "will often have a strong tendency to prevent capping, while the ripening process goes on rapidly." I am satisfied—yes, I may say I'm sure—that in some localities and in some seasons it is neither feasible nor desirable to tier up and wait till the close of that particular honey-yield; not feasible, because of the large and rapid honey-flow that would require so large a number of extra combs and supers to hold the surplus; and not desirable, because the honey is very nearly, if not quite, fully ripe without being sealed over. This will possibly account for the difference in opinion in regard to ripening honey artificially, or ripening it in the hive.

In my locality it is frequently desirable and always feasible to tier up and wait till the close of the honey-flow before extracting, and I have of late frequently asked myself if my eight-frame hives are not partially responsible for this condition of things.

The care of extracted honey is of more importance than it is generally considered to be; for if it is improperly cared for, much of its nice flavor and fine delicate aroma is either injured or entirely lost. I believe the best results will be obtained by putting the honey in large vessels, preferably tin, for a few days, just long enough to allow all impurities to rise to the top, when it should be drawn off by means of a molasses-gate at the bottom, and put into such receptacles as can be sealed up air-tight, and it will not in the least taint it, or injure its flavor. Honey so cared for can be kept as long as desired, and will be just as nice as when taken from the hive; and if such honey only were offered to the consumer, the market would not be overstocked.

I believe the time is not in the near future when there will be an overproduction of a strictly first-class article of extracted honey. Perhaps some of you are wanting to ask me, "What then is the cause of the low prices?" I believe there are two principal causes, and I hardly know which to place first; a poor article or an undeveloped home market; but I believe if I put "the last first" I shall not miss the mark very much. This brings me to the last part of the subject assigned me — "The best method of marketing."

I believe the most important thing of all in marketing extracted honey is, never to sell a poor article. The best time for selling seems to be in the fall and winter. The best way will be just the way your customers have been taught to buy it. Some markets demand tin pails, weighing, when filled with honey, from one to ten or more pounds. Other markets prefer glass pails, holding from one-third of a pint to a pint. Others prefer fruit-jars holding a pint or a quart, the smaller ones selling most readily. In other places the Muth honey-bottles meet with the most favor. Some localities require it candied, and others prefer it in a liquid state. My locality calls for it candied in stone crocks holding from one to four or five gallons.

The best place to sell is in the home market, and the editors of our bee-journals have been telling us so for a long time. Friend Newman, through the *American Bee Journal*, has been singing that tune so persistently and so long that it has become quite monotonous; but for all that, he is right, and he knows it, and seems to be acting under the inspiration of the adage, "Be sure you're right, then go ahead." Friend Root frequently awakes to its importance and repeats the story.

The Dadants have a town of only 1500 inhabitants in their locality; and although they had 24,000 pounds in 1886, it was all sold in their home market, and at much better prices than would have been realized if sold by commission men in large cities, in competition with others.

A good way which has been adopted by some, is to call at houses and sweeten up the babies, leave a sample of the honey that they have for sale, with a circular, a card, or a leaflet, giving the uses of honey, and the price; and, within a few days, call with the honey for sale.

I should like to refer you to articles on pages 15 and 183 of GLEANINGS for 1886, on marketing extracted honey, and to many other articles on the same subject in the same journal. Don't take GLEANINGS, did you say? Well, you ought to, and then perhaps you would know better how to dispose of your surplus honey. Then turn to the "old reliable," the *American Bee Journal*, and read the articles by G. M. Doolittle (isn't that man wrongly named? but then, we've heard that things sometimes go by contraries), the Messrs. Dadants, and others, and post yourselves as to the how to do it. Did you say you don't take the *A. B. J.* either? Well, what are you thinking about? Do you belong to the large family of bee-keepers, and are not using the means to inform yourself as to what is going on in the family? Perhaps you belong to the number who don't take any bee-paper because "there is so much in them that is of but little value." You don't talk that way about your grain and vegetables. You don't throw them away because there is chaff and dirt among them. "The good and the bad grow together." Let me ask, "Where is all the honey produced by the thousands of bee-keepers, sold?" Is it not really in a developed home market? Some of you, perhaps, will say we sell to our friend Muth. Well, where does he sell it? Is it not in a developed home market, that it has taken him years of time, and cost much labor to work up? Perhaps some of you will say that he ships large quantities to other markets. Suppose he does; do not those to whom he ships sell in a developed home market? The same that is true of friend Muth is also true of commission men. The honey they handle is sold in a developed home market. Now, if you prefer to pay freight, and friend Muth, or the commission men, and those to whom they wholesale, instead of selling it yourselves, please don't complain about low prices.

Are any of you farmers, and did you ever sell any apples, butter, eggs, corn, or potatoes? How did you do it? Did you sit down in the shade, or by a warm fire, with a great nasty quid of tobacco in your mouth, and literally befoul every thing within reach with your filthy expectorations, or with a well-filled old stump of a pipe fill the air with your (to you) beautiful, and, to others, offensive wreaths of smoke, disgusting, not "the girl you left behind you," but the one you once thought was the brightest, best, and sweetest being on earth, or did you load up the wagon and start out to find a market for what you had produced by earnest thought and hard and persistent labor? Were you ever ashamed to ask the lawyer, doctor, minister, business man, or any one else, to buy what you had so honestly produced? If you were, and had a first-class article to sell, you belittled your vocation and disgraced your manhood, and ought to fail.

Just try the same course with your honey, you do with your other products, offering only a first-class article in first-class shape, and *don't try to shingle* it. Let the specialists "go and do likewise;" and if they have more than they can dispose of in this way, then sell to friend Muth, or send to the commission men, and they and you, I doubt not, will realize better prices. A. B. MASON.

Auburndale, O., Jan., 1888.

Friend M., I fully indorse your closing paragraph; and whether you use an eight-frame hive or a ten-frame hive, remember that it is always better to have your honey ripened a little *too much* than not quite enough. In working for extracted honey, I think I should rather prefer the ten-frame hive, on account of this matter of ripening particularly. I am sure we get more honey by tiering up on the plan you recommend, than by extracting every time the upper story is full. As extracted honey is never injured in appearance by being left on the hive, we have nothing to fear from bees running over it with muddy feet, as they do where we aim to produce very white comb honey.

LIGHT IN THE CELLAR.

FRIEND BINGHAM ASKS US TO PROVE THAT IT IS HURTFUL TO THE BEES.

AMONG the sanitary writings in GLEANINGS I do not now remember having seen light mentioned as an essential to the safe and healthy wintering of bees. No doubt all there is of the subject under consideration is old as applied to dwelling-houses. The effect of light on vegetation, no one has failed to note. It has been much written about by sanitary writers, and has been claimed as an important factor in houses as a means of maintaining the health of their occupants.

It is with a view to calling attention to the subject rather than giving my experience that this article is written.

Many years ago I had occasion to winter a few colonies of bees in a light cellar—as I now call to mind (I write this last sentence, that every bee-keeper may agree with me that the fact is not new—not patentable, even). The result was favorable; viz., the bees wintered finely, and did not spring dwindle. Since then I have had no experience practically in wintering bees in light cellars, though I have had some in dark ones for several winters past.

This subject has so long and persistently clung to me, that, last season, I determined to test it fairly this winter and note the results. Just here, bear in mind that next June will show the result. This experiment I have undertaken on all the bees I have in the cellar—a pile six hives long and three high (eighteen colonies in all). They face the east, and are perhaps ten feet from the window—an ordinary cellar-window, three-paned, and of two thicknesses of glass. This window the hives all face, and each hive has an entrance 23 inches long. The cellar is light enough to read in all day, and early on sunny mornings the sun shines directly into the room, and the light is strong.

The bees could fly if they pleased; but only now and then one starts from the hives, turns round, head to the hive, locates it, and flies to the window, where, of course, it dies.

I have made some inquiry of bee-keepers who winter bees in dark cellars and caves—why they always use dark ones, and, strange to say, the only reason so far given has been this: "To keep the bees quiet." Now, is there any evidence that the bees are kept quiet by the absence of light in the cellar? In this article I shall assume that there is no solid proof that the absence of light does so act upon bees in confinement. I have maintained, that the cause of quiet and repose of bees was due to the simple fact that, at the close of the honey season, as vegetation failed to blossom and yield honey and pollen, the objects inciting to activity gradually disappeared; and the bees, with an instinct peculiar to themselves, find no incentive to activity, and repose is the normal result. It is not darker when plants do not bloom, neither do bees show a disposition to fly because the light exists, neither because the sun shines even. When I had my bees in Tennessee, nothing so pleased and delighted me as to see the bees loll in the warm sun at the entrance to the hives on sunny noons. We have all seen bees lounge on the fronts of the hives in autumn when the air was warm and the sun bright, with apparently no disposition on the part of the bees to fly. I cite these common cases as evidence, not proof, that light does not produce disquiet when bees are in the open air. That daylight, or even sunlight, does not disturb bees in the cellar, my experiments tend to show.

Other than the perhaps theoretic value of light in maintaining the health of bees, and their consequent quiet and repose, there is one other consideration not to be entirely lost sight of; viz., the ease with which they may be casually seen from day to day. They do not seem to notice one's presence unless jarred.

No doubt it will be said, that "your bees are quiet because they are cold." Very well, that may be true; still, 45 to 50° so far has been my cellar temperature.

While I do not at present take positive grounds that light is absolutely essential to the healthful wintering of bees, I will assume, as I have ever done, that the one great reason why bees winter so safely in well-protected hives in the open air is, that they have plenty of God's vitalizing air and sunlight. T. F. BINGHAM.

Abronia, Mich., Jan., 1888.

Old friend, I am glad you have started out on this thing—not because I feel sure that you are right, but because it illustrates a great point. People learn how to do things in different avocations in life; and because they succeed with them they go on doing the same thing year after year, when the very thing to which they attribute their success has nothing to do with it whatever. Our experiment stations are shaking this out of us a good deal, but it is not by any means over yet. During our recent eclipse, very many said, "There, we shall have warm weather now." When I remonstrated they defended themselves by saying they had noticed all their lives that the weather changed after an eclipse, or that any sort of eclipse makes the weather warmer. Sure enough, the weather changed to warm directly after our last lunar eclipse. But all these patient observers failed to notice that the weather changes almost continually when we *don't* have any eclipse. The man who drives our team does not want to kill the pigs unless the moon is "right," and so it is all around us. Peter Henderson says that one of the greatest obstacles in the way of intelligent gardening is, that people cling to so many senseless manipulations; and especially is this true of the old-countrymen. They have so many formulas and sleights that it occupies a good part of their time to go through with them, and they insist there is no success without it. Yet a progressive young gardener, who discards every thing without good common sense to back it, soon discovers that these old processes that have been treasured up and followed so long do not affect the result at all.

Now, then, in regard to light in cellars: I told you, in an editorial on page 68, 1888, that bees will fly whenever the temperature is from 50 to 55. Now, my idea has been for years that there is no need of having the cellar dark, providing we can keep the temperature below this flying-point. I do not believe the bees would fly, no matter how much light they have, providing you keep them below 50. If you let the sun shine directly into their hives when it is 45 in the cellar, the rays would very soon run it up to 50 or more; therefore, under such circumstances darkness would be an aid toward keeping them in their hives; but if we had a cellar that could not run above 45, whether the sun shone into it or not, I should not be surprised if they would do just as well, or even better, to give them as much light as possible. In raising plants in the greenhouse, we must have light. All the fertilizers in the world, with the very best temperature imaginable, will not give us a healthy growth without the light; in fact, a great many plants will not grow at all unless they have sunlight and plenty of it. You know some of the friends recommend wintering bees in cellars that run up to 60, 75, and one friend has talked about even 90. Well, unless you have perfect darkness with these temperatures it seems to me your bees would very soon have a great big general picnic. It is true, bees sometimes loaf in the open air when the temperature is favorable, because they have nothing to do; but I think that, after a long spell of confinement by cold weather, they are pretty sure to fly, in doors or out, when the temperature is above 55, and they have plenty of light. Sometimes, you know, they are confined by wire cloth; but under such conditions it seems to me the room had better be dark whenever the temperature comes up to the flying-point.

HERMAPHRODITES, AGAIN.

PROF. COOK CONSIDERS THE SUBJECT FURTHER.

MR. T. F. McCAMANT, of San Antonio, Texas, writes me as follows:

> In GLEANINGS, p. 52, you say that "snails are true hermaphrodites." Are you not mistaken? They are *very* numerous here. In summer, on wet days the bushes hang full of them; and in spring time I have seen dozens of them mating. The shape of the shell is somewhat different from those of the North, but otherwise they seem much the same. The shells are longer than those of the Northern snails. When the weather is warm I will try to send you some specimens; also some specimens of our numerous species of ants and other insects, if you will not consider it an imposition.

I am glad to respond to Mr. McC., for I can very well see how he was puzzled to reconcile my statements with his observations; and as others may be confronted with the same puzzle, I think it well to explain through GLEANINGS, especially as the matter is one of general interest.

No, I am not mistaken; nor is Mr. McC. While both angleworms and snails are genuine hermaphrodites, the species of both groups of animals having both male organs (testes) and female organs (ovaries), yet the animals are not capable of self-impregnation. It has been said, and I think truly, that Nature abhors close in-breeding. In plants we see how this is prevented through the bees, and so how the plants are benefited by the fact that bees seek them in quest of pollen and nectar, and thus close fertilization is prevented.

It has been suggested, that, in case of both snails and angleworms, the sperm and germ cells do not ripen or mature at the same time, and thus the animals must mate, though true hermaphrodites. I think it quite likely that, in many cases, self-impregnation is impossible structurally; and we may reasonably conclude that in all cases it is prevented through the instincts of the animals. The old Dutch writer and scientist, Swammerdam, whose beautiful and accurate descriptions and illustrations of the anatomy of the bee would be worthy of a scientist of the nineteenth century, also illustrates the mating of snails, just as we may observe it by careful observation at any spring time. Angleworms mate, usually, in the night, and so are not so frequently observed. The large ring, about one-third the length of the angleworm, from the head, which is so large in early summer, is a gland, and is a true mating organ of the angleworm.

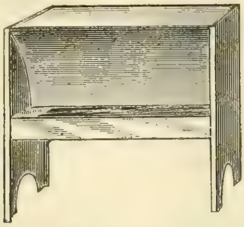
I am glad to know that Mr. McC. is to send me specimens. I shall be glad to receive such from bee-keepers everywhere. Let all send so carefully that the insects, etc., will come without harm.

Agricultural College, Mich. A. J. COOK.

CLEAN WATER FOR POULTRY.

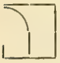
DR. A. B. MASON USES A BEE-FEEDER TO GIVE THE CHICKENS DRINK.

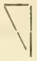
FRIEND ROOT:—Inclosed I send a drawing of an automatic fountain, with which to water poultry, that will be good to set in your winter poultry-house or anywhere else. It is the handiest, best, and cheapest I ever saw. Mine is made of heavy galvanized sheet-iron. As neither fowls nor chickens can get into it, and no dirt gets scratched into the water, it is kept clean. We have smaller ones set on the ground for chickens. I got the idea for this from H. D. Cutting's bee-feeder.



MASON'S POULTRY DRINKING-FOUNT.

It is made of three pieces. One piece, 10x21¼ inches, bent thus, makes the body. This will bring the front end within one inch of the bottom of the tray, and 2½ inches from the front, and ¼ inch lower than the front. The curved front might be left straight, thus, but it would be in the way of the fowls' heads when drinking.





The ends are made of pieces 5¼ inches wide and 10 inches long, with ⅛ of an inch of the side and upper end turned at a right angle, and the lower end cut out as shown. The ends of the body part will just fit inside of the turned edges of the end pieces, and, when soldered, the fountain is complete, and will hold between two and three quarts. If desirable to have it hold more, it can be made larger in any or all directions.

It is easily filled by turning it on its back and pouring in the water; and then, by tipping back further, it will fill up to the top. It can then be set where desired, and is "ready for" business."

A. B. MASON.

Auburndale, Lucas Co., O., Dec. 12, 1887.

Very good, doctor. We have had our tinners make one just after your drawing, and it does the business tiptop. But within a few miles of us are stoneware factories which keep something on the same principle, of stone, which we think a little nicer, because the latter is so much more easily kept clean. It is just as you say—the chickens can not step on the sides and upset the thing. They can not wade in the water, nor scratch dirt and droppings into it. The water looks clean and pure so long as there is a drop of it left. The stoneware arrangement is a little heavier for transportation; but the expense for the same capacity is about the same as the galvanized arrangement figured above, and I do like the idea of having the poultry neat and cleanly in their habits. It is a pretty hard matter to keep a poultry-house looking tidy; but these arrangements are a great help toward it.

HEADS OF GRAIN

FROM DIFFERENT FIELDS.

REPORTS IN REGARD TO THE PROSPECTS IN DIFFERENT STATES.

THE plan as proposed in GLEANINGS, by Prof. Cook, for gathering and publishing statistics in regard to the honey crop, is, I think, an excellent one, and I hope the editor of GLEANINGS will not fail to adopt it. Every season I hear my neighbor bee-keepers say, "I wish I knew how the honey crop is in the West, South, and North, then I should know what to ask for my honey, and when to sell." Last year I got about 80 lbs. of box honey per colony. I thought if this was about what every bee-keeper got, I had better sell my honey as soon as I could, and I did. I received only 14 cts. per lb., net. If I had known that the crop was so small I should have asked 20 cts. and got it. Should you desire to add this feature to GLEANINGS, you may consider your humble servant free of all cost. W. CROMMIE.

Cobleskill, N. Y., Jan. 25, 1888.

Thank you, friend C. This matter of statistics is certainly to be a prominent feature of GLEANINGS for the coming year—at least, we are going to try it; and until we get it a little more under way we should be glad to have the friends everywhere tell us how bees have wintered, and the prospects generally for a crop of honey, so far as they can. For the present we will publish these, providing they are made brief. A postal card will contain all that needs to be said, and you can write it big at that. From localities in the South, where winter is already over, and the bees are gathering stores to some extent, reports will be acceptable already. Please let us have them for our next issue.

HONEY BY THE BUSHEL; A NEW USE FOR THE POTATO-BOXES.

I received the goods you sent me, all in good shape. Those 32 potato-boxes are "just boss." I am putting them up on stormy days and at odd spells, and filling them with those one-pound sections. They hold 72 sections as nicely as though they were made to hold them. I shall soon have 32 bushels of sections put up; and I tell my folks, that, if nothing happens, I expect 32 bushels of honey in one-pound boxes next fall. I will tell you how I expect to get it. I shall have those potato-boxes full of sections with starters in when the honey season opens, and put them on 68 colonies when the right time comes; and when they are full I shall take the boxes out in the apiary; and as I take off those nice white sections filled with white honey, I shall shake off the bees as fast as possible, and fill those potato-boxes and carry them in by those handles, and then clean it up and put it in shipping-cases in time to have the boxes to handle my potatoes with. Do you think I can succeed?

Do you make the T super to use wood separators? I much prefer wood to tin for separators, and those four I received from you will not take wood separators with the $1\frac{15}{16}$ sections. I should like to know, as I was thinking of ordering some more.

Do you make wood separators to fit the T super?

Can you tell me the largest amount of comb honey made by one colony in one season? also the largest amount of extracted? also the largest amount of money received from the honey from one colony in one season?

I am to deliver an essay on bee-keeping for pleasure and for profit. Any thing you could tell me in this line would be thankfully received.

New Milford, Pa., Feb. 1, 1888. F. W. DEAN.

Friend D., we shall have to accord to you the credit of originality at least, for suggesting this matter of honey by the bushel. I think, however, our veterans in honey-producing will tell you that you will save labor and manipulation by putting your sections filled with starters right into the crates to sit over the hives. I don't know any better suggestion for your essay than to give in substance what you have given above, and entitle it, "Honey by the Bushel."—Regarding the largest amount of comb honey produced by a single colony, we have several times run over 100 lbs., in our locality; and a neighbor of ours, during one very favorable season, received something over 200 lbs. from a single colony. Various accounts have been received through the bee-journals, of, I think, 300 lbs., or may be more, of comb honey from a single colony during a single season, but such things are the rare exception. See Special Notices for separators.

A WARNING IN REGARD TO WALKING OR STANDING ON THE RAILWAY TRACK.

Mr. Root:—As my husband had written to you, intending to renew his subscription for GLEANINGS, but was called to eternity without a moment's warning, I will send his letter with these few lines. He was walking beside the railroad track when he slipped and fell, on Christmas day, and was killed by a passing train. Oh! can it be possible that any one should be called away without one moment to prepare? MRS. C. T. CLARKE.

Albion, Ind., Jan. 2, 1888.

The following letter of kind words is the one referred to above:

Dear Sir:—Please find inclosed one dollar for GLEANINGS for 1888. I have been at Miller since March, 1880, and, I must say, in all that time I have never had to complain of GLEANINGS not coming to me regularly, never missing once. I still hope that it will reach me still the same here as long as I stay. Give my kind regards to yourself and family, also to all the employes of your factory, wishing you merry Christmas and a happy New Year.

CHAS. T. CLARKE.

Albion, Noble Co., Ind., Dec. 24, 1887.

May God help you, dear friend, in your terrible affliction. It is indeed but too true, that we are often called to meet our Creator without a moment's warning; and in view of this, does it not behoove us to be always ready? What a kind, cheery letter it is that your husband wrote us! There was certainly nothing in his heart at the time but kindness and good will toward all humanity on that day before Christmas. Think of the words, "A merry Christmas and a happy New Year." And now let us draw a moral from this sad event: I notice in our large cities there are signs up, and notices warning people to keep off the tracks, especially where many tracks run side by side; and I have often noticed, too, that almost every one is liable to get in the way of moving trains, even though he be perfectly familiar with them. Even though your husband was an employe of the railroad company, and it was his daily business, it seems he took risks that perhaps he need not have taken. Not very long ago, right near our factory, a carpenter was employed in making some repairs near the track. A locomotive passed him, and he supposed it was out of the way; and so much was his mind on the work he was doing that he did not notice it went ahead a little just to back up. Before any one knew what he was doing, he knelt down to the work, with one of his legs across the track; and although there was quite a number standing around, and the engineer, too, was on the watch, a leg was cut off before anybody knew it. Beware of locomotives; and especially beware of trains that are switching and backing up. Don't take foolish risks. Remember how easy a matter it is for your foot to slip, as in the above sad case.

AN INVITATION TO FLORIDA.

Mr. Root:—You have expressed a desire to see Florida. Just jump on a car some morning and come. I think you can come right here without changing cars, and Miss Adams and myself will meet you at the depot and protect you from the "land agents" which are more to be dreaded by a new comer than mosquito-hawks by the queen-rearer. My husband (we have not a foot of land to sell) will take you as far as you care to drive, and see orange-growing, while I will entertain your wife or daughter who may accompany you. Then buy a grove to supply you with oranges, and give you a warm home to fly to when weary of the cold —a bee-keeper's Florida home, where you or your friends can spend some of their time.

MRS. A. A. NEEDHAM.

Sorrento, Fla., Jan. 26, 1888.

You may rest assured, good friend, that when we *do* go to Florida we shall certainly take advantage of your kind offer; but with present responsibilities we do not see our way clear just yet.

HISTORY OF CARNIOLANS IN THE U. S.

I find that Carniolans were, in 1879, 1880, 1882, usually called "Krainer bees," and some colonies were received here under that name; but in 1879 a dozen queens labeled "Cyprians" arrived in New York, consigned to some one with a German name in Iowa. They were not Cyprians, but Carniolans, as the shipper afterward confessed. Can any reader advise me who got these Cyprians? Or does any one know of an earlier importation of Krainer bees? I should be thankful for an early answer direct to me, and GLEANINGS will very early have the benefit of it. S. W. MORRISON, M. D.

Oxford, Pa., Jan. 27, 1888.

"Krainer" is simply the German for "Carniolan," friend M.

BEES AND NEIGHBORS; A SUGGESTION.

Would it not be well for bee-keepers to supply their neighbors within a radius of a mile or so around them with honey at a reduced price of, say, 20 per cent or more, or less, according to the nearness of those neighbors? Would it not cause them to feel that our bees were not in their way, and create a better feeling generally toward us and our calling? I offered honey, and sold some to begin last year, at eight cents, to my near neighbors, when the price was ten in town. But the season soon closed, with no surplus honey, so I had to refuse to sell any more at any price; but I went far enough to see that my neighbors were likely to become good customers. **JAS. A. STONE.**

Bradfordton, Ill., Jan. 16, 1888.

Friend Stone, with what experience I have had I am inclined to think you would succeed only in establishing the price at 8 cts., and everybody else would have to follow you, and the result would be that your neighbors would not know, or would fail to remember, that you had been trying to do them a kindness. I believe it is better to ask the regular market price for every thing we have to sell. You might say, "Neighbor A, honey is selling in town at 10 cts. a pound; but as you are a neighbor, I will charge you only 8 cts." In this way I think it would be appreciated; but you want to be sure, when you say so, that it is the *exact* truth of the matter.

THE CANTON BEE-CONVENTION.

The Stark Co. Bee-keepers' Society met in Grange Hall, Canton, O., on Saturday, February 4. The President, Jacob Oswald, of Maximo, being absent, W. S. Kline, of Bolivar, Tus. Co., was called to the chair pro tem. Owing to the very dangerous condition of the roads and streets, only a few bee-keepers were present; but notwithstanding this fact, a very pleasant and profitable time was had. A committee, consisting of Henry Beatty, of Massillon, and J. H. Smith and L. J. Wise, of Canton, was appointed to wait on the directors of the Stark Co. Agricultural Society to ask for a revision of the bee and honey premium-list. After the questions from the query-box were answered, the society adjourned to meet on the second Wednesday in April next. **MARK THOMSON, Sec.**

A COLONY OCCUPYING A CREVICE BETWEEN TWO ROCKS IN CALIFORNIA.

I have not met with a single progressive bee-keeper in this part of the State, yet I have bought in the stores some very fine honey gathered here by "wild bees" as the natives call them—that is, bees living wild in rocks and trees. While out deer-hunting I came across a very large colony occupying a crevice between two rocks. The combs were weather-beaten, but the bees were too strong to be fooled with in the dry season, so I did not disturb them. As soon as the willow blossoms, I will remove them to better quarters. **R. S. GREEN.**

Cayucos, Cal., Dec. 1, 1887.

BEES NEAR A RAILROAD, NOT DISTURBED.

I have seen frequent statements, both pro and con, as to bees being disturbed by passing railroad trains, and I will now state my case. I have now had my apiary for ten years, located within 100 feet of the main line of a railroad where, on an average, about 40 trains pass at full speed every 24 hours, and I have never been able to detect any harm or disturbance from the jar or noise. Last winter I went out where the ground was frozen hard, and put my ear to several hives when trains were passing, but could not perceive that it caused any buzzing or disturbance to them in any way.

A. A. FRADENBURG.

Port Washington, O., Feb. 6, 1888.

NOTES AND QUERIES.

LOOK OUT FOR HIM.

On page 110 I notice you say, "Look out for him!" Yes, I think you had best do so, friends. William Connelly, of Ogden, Boone Co., Iowa, is the man who advertises chickens, eggs, stock, and I don't know what else; holds his property in his *wife's* name, and pays his debts by saying he sent the money by postal *note;* at any rate, that is what he did for me in the spring of 1886, to the tune of $5.00. I had the matter investigated then, without any result, only as above stated. **ABBOTT L. SWINSON.**

Goldsboro, N. C., Feb. 6, 1888.

Weather is cold—from 10 to 30° below zero; no rain, and water scarce for stock. Some have to drive a mile to get water for their stock, but I thank the Lord that it is no worse. **J. S. WILLARD.**

Bedford, Taylor Co., Iowa, Jan. 19, 1888.

THE PROSPECTS FOR TEXAS THIS YEAR GOOD.

My golden Italians are working hard on meal and flour that I have been feeding them. They usually get natural pollen by this time. Prospects were never better for a honey crop, as the ground is almost covered with horsemint, and that is our main honey-plant here. **L. B. SMITH.**

Cross Timbers, Texas, Feb. 2, 1888.

AUGER-CHIPS FOR SMOKER FUEL.

I observe with interest the recommendation, in GLEANINGS, of pine leaves as smoker fuel. I can add to the list, white-oak auger-chips, which I find very good fuel for my Clark smoker. Probably auger-chips from other kinds of wood would do well also. **W. W. LENOIR.**

Shull's Mills, N. C., Jan. 12, 1888.

14¾ LBS. OF JAPANESE BUCKWHEAT FROM A 5-CENT PACKAGE.

I thrashed my Japanese buckwheat, which I raised from a 5-cent packet. I raised 14¾ lbs. It grew 5 and 6 feet high. It was blown down when it just began to fill, so I didn't get a full crop.

FRANCES TAYLOR.

Fall City, King Co., W. T., Jan. 28, 1888.

A CORRECTION.

Your printers or somebody made surely a mistake in publishing my report for 1888 in Jan. number, page 25. In place of 160 gallons it ought to say 650 gallons for I certainly could not have sold the 160 gallons for $300; but I did sell 650 gallons, and the net proceeds were $300, after deduction of barrels, freight, etc. If you think proper, please correct the report. **J. W. ROSS.**

Phair, Texas, Jan. 26, 1888.

THE BLIZZARD OVER.

We have a change from the cold blizzard weather, which has held high carnival for the past thirty days, to more spring-like weather. My bees have enjoyed the change by having a good cleansing flight, and so far have wintered very nicely. On examination of a few colonies this 28th and 29th of January, 1888, I find my Italians and Carniolans have eggs in one and two combs, from 2 to 4 inches square. **J. B. KLINE.**

Topeka, Kas., Jan. 30, 1888.

REPORTS ENCOURAGING.

MY REPORT.

I STARTED with 79 stands of bees this spring; lost three during the summer by losing their queens; had two new swarms, and divided one. I had my bees in three places—one two miles and a half southeast, one three miles north, both in the basswood timber. From the southeast and at home I got nothing, and had to feed; and from the north one I got about 50 lbs. of honey. Bees are all in the cellar in fair condition. I am not in the least discouraged. I think next year will be good. A. L. KILDOW.

Sheffield, Ill., Jan. 1, 1888.

FROM 2 TO 9, AND 450 LBS. OF HONEY.

I had 2 stands of bees to start with this spring, after shipping them 200 miles—75 by rail, 125 by wagon. I increased to 9, got 450 lbs. of comb honey; left over 30 lbs. in each hive. C. C. BARTLETT.

Vernal, Utah, Jan. 23, 1888.

FROM 13 TO 17, AND 600 LBS. OF HONEY.

I started with 13 colonies of bees in the spring of 1887. I increased to 17, and got 200 pounds of honey in the comb, and 35 gallons of extracted. I think that is doing pretty well for such a dry season as this was. SAM HEBB.

Breeds, Ills., Dec. 29, 1887.

FROM 10 TO 23, AND 300 LBS. OF COMB HONEY.

I went into winter, 1886, with 14 swarms, packed in chaff hives on summer stands. I came through the winter with 10 swarms. I increased to 23, and took 300 lbs. of comb honey. My bees are in good condition for the coming winter.

LAWRENCE GOODRICH.

Smyrna, N. Y., Dec. 21, 1887.

18 LBS. SURPLUS PER COLONY.

The 2 ounces of Japanese buckwheat I got from you last spring did well, considering the great drought. I got 6 quarts. It will do well in our dry hot climate. Our honey crop was light—18 pounds of surplus to the hive, spring count; last year it was 50, and plenty to winter on. JOEL HISER.

Edgar, Neb., Dec. 23, 1887.

FROM 50 TO 80, AND 2000 LBS. OF HONEY.

The season has been a fair one. Clover and basswood yielded fairly well. I increased from 50 colonies to 80, and took 2000 lbs. in 1 and 2 pound sections, and 600 lbs. extracted. I fed 1000 lbs. white sugar, to make sufficient stores to winter the 80 colonies. I placed bees in the cellar Nov. 10.

N. A. BLAKE.

Smith Mills, P. Q., Canada, Dec. 19, 1887.

FROM 10 TO 19, AND 450 LBS. OF COMB HONEY.

My spring count was 10 colonies, and I increased them to 19 by natural swarming, and got 450 lbs. of comb honey. I got no honey from my spring swarms, and but very little from one or two of my old ones, they being very weak in the spring. My best one gave me 85 lbs. The season was considered the poorest for many years, and some were so unfortunate as to get little or no surplus. When the honey-flow stopped it stopped "short off," so to speak, and left a good many sections in bad shape. Now, what's to be done with them? G. W. DAVIS.

Pine Creek, Mich., Jan. 8, 1888.

A GOOD FLY FROM CHAFF HIVES.

On Jan. 15th, the thermometer ran down to 26 below zero; Jan. 16, 9 below—the coldest it has been for years. My bees didn't seem to mind it, for on Jan. 29, 30, and 31, the bees had one of the finest three-days' fly I ever saw for this time of year. The mercury stood 92 in sun, 50 in shade. It was one of the finest sights to see the yellow Italians gush forth from every hive. I want you to count me one in favor of chaff hives. I believe there will not be one swarm in ten alive in this part of the county, mostly for want of stores to keep them through. They are mostly blacks, and I think that is the reason they didn't do any better. The Italians seem to be far ahead this year out here. The queen I received of you is still alive, and as pretty as ever. She was one of the finest "birds" that ever came to this country. JOHN BLODGET.

Empire, Mo., Feb. 5, 1888.

REPORTS DISCOURAGING.

ONLY 15 LBS. OF HONEY FROM 53 COLONIES.

I COMMENCED the season with 53 colonies in good condition, and increased to 73 by natural swarming. There was as fine a prospect for honey as one could ask for; but the dry season came on, and I was able to harvest the enormous amount of 15 lbs., all box honey. This is almost as well as the rest of my neighbors have done. Honey is retailing at 25 cts., there being some that was held for higher prices from last year's crop. The condition of many colonies is very bad, so we look for many to die before warm weather. We have had two bad seasons, so next we look for one that will put all in fine spirits again.

Villisca, Ia., Jan. 4, 1888. B. F. COWGILL.

Bees have done very little here this last season. Some neighboring stands that received no attention have died, and others, I think, will live through. I wintered five colonies, and increased to ten and five nuclei. W. A. MITCHELL.

Youngstown, O., Jan. 2, 1888.

55 LBS. OF HONEY FOR 1887, AGAINST 235 FOR 1886.

I have been in the bee-business for five years. I have 40 colonies, most of them Italians. This has been a very poor honey season in my locality. I got but 50 pounds of comb honey from my best Italian colony this year, while last year I got 235 pounds of extracted honey from the best Italian colony. JOHN SHANKS.

Plymouth, Hancock Co., Ill.

THE BEES DIDN'T PAY — A DEBIT AGAINST THEM OF $79.22.

I see by last GLEANINGS that my time has expired, and I shall be obliged to have it stopped. This decision is not what I wish it was; but my time spent on and with bees has not been very lucrative in dollars and cents; but I should not like to part with the knowledge acquired in the time I have kept bees (three years). There are no other bee-keepers who take any bee-journal around here, and most who keep bees here do not make enough off them to afford to take a bee-journal. Mine have a debtor balance against them of $79.22. H. W. SCOTT.

Williamstown, Vt., Dec. 28.

OUR QUESTION-BOX,

With Replies from our best Authorities on Bees.

All queries sent in for this department should be briefly stated, and free from any possible ambiguity. The question or questions should be written upon a separate slip of paper, and marked, "For Our Question-Box."

QUESTION NO. 34.—*When snow is banked around the front of the hive, is there danger of the entrance being closed by ice, and so smother the bees? Do you, as a rule, think it advisable to sweep the snow away?*

No. W. Z. HUTCHINSON.

Yes. GEO. GRIMM.

No, no. JAMES HEDDON.

Not unless there comes a thaw followed by a freeze. I do not. MRS. L. HARRISON.

Not much danger, if the bottom-board is pretty slanting. No; but if there is a crust on the snow I would break it. DR. A. B. MASON.

Yes; but it is easy to guard against it by leaning a board over the entrance, else we should keep the opening free. A. J. COOK.

There would be danger if there were no other crevices through which air could pass. We always sweep the snow away from the apron-board, because we want a clean place for the bees as soon as mild weather comes. We leave the other sides banked up. DADANT & SON.

1. No danger of smothering the bees, if they have ventilation from above through chaff cushions, etc. The main danger comes from the bees getting too warm where sitting near the ground, if covered with snow for too long a time.

2. I never sweep the snow away, but keep it off the hive by leaning a wide board, slanting, up against the front of the hive. G. M. DOOLITTLE.

During a long-continued cold spell, snow forms a good blanket; and at such times it is not likely to make any trouble at the entrance. I would keep watch, and see that the wet snow did not clog the entrance after a warmish spell; but so long as the snow is unthawed, I would hardly sweep it away. My experience, however, is very limited.

C. C. MILLER.

No danger with the hives we use. We have an entrance even with the bottom of the hive, and also an entrance one-third of the way up the hive. This upper entrance never gets closed up from any cause. We never sweep away the snow; in fact, we never see our out-apiaries after we fix them up for winter until a warm spell in March or April.

E. FRANCE.

My practice has been to keep the entrances open; but if the entrances are large, I doubt whether it does any harm to have them covered with light snow. When the entrances get plugged with ice it is usually by the freezing of water that comes from the inside. I should not want hives entirely covered with light snow *during the first half of the winter*, lest it might start them to breeding too early.

E. E. HASTY.

Perhaps many of the friends will remember that this matter of snow over the entrance has been discussed a great deal in our back volumes. Well, I have watched the matter pretty carefully, and I am sure that our bees have never sustained any injury from having the hives covered with snow. In fact, I always feel a great deal better about them when I see the snow is drifted all around them; and I prefer to have them covered up entirely, rather than any other way. I do not well see how the hives could be too warm when *snow* is all around about them. We have had reports from those who took pains to sweep the snow away from part of the hives, and leave the other part undisturbed. In every such experiment that I remember of, the bees undisturbed did the best, and I should be pretty sure they would too. Scratching around a hive with a broom so as to disturb the bees, and make them think some enemy is about when they are in their winter sleep, I feel sure is not a good thing to do. As Prof. Cook once failed in trying to smother the bees by throwing water on the entrances, so as to freeze every thing up solid, I do not see why he should not fail if he tried to smother them by banking them up with snow. Think of advising a bee-keeper with 200 or 300 hives to go around with a broom every time we have a snowstorm! I am a little surprised at our good friend Grimm. Didn't he mean to write *no* when he made that *yes?* We should be very glad indeed to have him give us a few more particulars.

QUESTION NO. 35.—*Do you think bees are able to distinguish color? Have you found it advisable in your experience, as an additional "landmark," to paint the hives or entrances different colors?*

Yes. DADANT & SON.

1. Yes; 2. No. DR. A. B. MASON.

Yes, but I think they pay little attention to it. No.

JAMES A. GREEN.

I don't think they observe color. Locality more than color. MRS. L. HARRISON.

Their ability to distinguish color, if existing at all, is very limited. No. GEO. GRIMM.

I think they distinguish colors; but I would have the hives and entrances all alike, unless it might be in a queen-rearing apiary. W. Z. HUTCHINSON.

Yes, if the colored place is large, say two feet square. For a landmark I use cleated boards at every alternate hive. G. M. DOOLITTLE.

1. I am quite sure they know my black hats from my other-colored ones, otherwise I think they are but slightly influenced by color.

2. No, for various reasons. R. WILKIN.

I am positively sure that they do distinguish colors. No; I paint my hives all one color, because they sit from six to eight feet apart, and no further caution is necessary. JAMES HEDDON.

I think they may distinguish colors, but I think little or no use is made of this in finding their hives. The location of the hive and surrounding objects is their guide, and I would have all hives alike.

C. C. MILLER.

I think bees can distinguish color; but the appearances are that they seldom avail themselves of this power much. Painted entrances will hardly be worth while, in my judgment, unless one is raising queens; and I'm not certain about it then.

E. E. HASTY.

Yes; but the color of the alighting-board is noticed much quicker than the color of the hive will be. To the last part of the question, I would say no;

for I had plenty of space between hives, and other "landmarks," such as trees, etc.
O. O. POPPLETON.

I think there can be no doubt of it. The admirable experiments of Sir John Lubbock prove it. (See Lubbock's "Ants, Bees, and Wasps"—a most interesting and valuable work.) I have not painted hives differently. I hardly think it necessary or desirable. I have not done it, and have lost very few queens. A. J. COOK.

Yes, I am sure that bees distinguish color. We paint our hives different colors, for that reason. We paint white, blue, red, yellow, and brown, and mix some of the colors to make shades; then mix the hives up as much as we can; have one hive white all over; another white body and some other color for top; no two hives need to look alike near each other. E. FRANCE.

I have heard and read that bees distinguish colors, but my own experience has not convinced me of the fact. It was not for the bees but the queens that different-colored hives seemed advisable. Many of our friends are most positive that young queens, returning from their bridal trips, are in greater danger of entering the wrong hive when these are of the same color, and stand close together, than when otherwise. It is my experience, that queens and bees return to the spot from which they emerge. Their landmark is to me as incomprehensible as the landmark of the birds in dense woods. I had for years 40 colonies or more as close together as the hives would permit; raised queens every summer in almost every one of them, and my young queens made no more mistakes than those of any one of my neighbors.
CHAS. F. MUTH.

I have experimented several times to arrive at some conclusion; but so far I am still at a loss to pronounce myself positively. I have placed a lot of nuclei as close as 6 inches apart. Some on one stand would be all alike, and on other stands painted different colors, and the loss of queens would be as great in one as the other, and at other times it would be greater in one than the other, and vice versa. I have also had some in the yard at a distance of four and five feet, and still at times the loss would be as great. I have taken queens from those nuclei that were all alike, that had been laying for a day or two, throw them in the air, and, after circling in the air, they would make no mistake and go right to their nucleus. I have done the same thing with the others, and the results were the same. They sometimes made mistakes, and that as well with one as with the other.
PAUL L. VIALLON.

Well, I believe, friends, you have collectively hit the nail about on the head. A good many experiments seem to indicate that bees can distinguish colors; and I have sometimes thought that the gorgeous hues of the floral kingdom were, many of them, put on on purpose to attract the bees. Is it not likely the bee recognizes a clover-field a long distance away by the color as well as odor? and may not the same be said of goldenrod, aster, buckwheat, etc.? Notwithstanding this, I have for years been pretty well satisfied that painting hives different colors did not seem to help matters very much. Locality, as the testimony seems to indicate, seems to have most to do with the matter, in finding their homes. I remember one spring, when we lost bees so badly there was only one colony in a row of several hives. This colony stood next to the end of the row—that is, there was one empty hive beyond them. This empty hive was wanted for something, and it was taken away when the bees were working vigorously. What do you suppose happened? A small swarm of bees piled right into the one next to where they belonged—the one, in fact, that stood next to the end of the row. This seemed to indicate to me that the bees had been in the habit of locating their home by remembering that it was next to the last one in the row, or that there was one hive beyond it. When this one hive was removed, every bee, in returning, struck the empty hive because it stood next to the end of the row, and they did not know that one had been removed. It occurred to me then, that there was a trick by which we might get an artificial colony or a strong nucleus, without removing the parent hive at all; but the invention has never been developed that I know of.

QUESTION NO. 36.—*Is it more economical in the long run to keep hives well painted, or do you think an unpainted hive will last long enough for all practical purposes? If you think it advisable to paint, what kind have you found the most durable?*

Yes, I think it pays well, aside from the looks, to keep them painted. J. A. GREEN.

Keep painted. It is neater and better. Use white lead, or light colors. We use Tascott's enamel paint. DADANT & SON.

Paint white inside and outside. I have had hives so treated in use fifteen years or more, and find them almost as good as new to-day.
GEO. GRIMM.

Yes; a hive kept well painted ought to last as long as a house, provided it is kept off the ground. Mineral paint; venetian red.
MRS. L. HARRISON.

I think it is better to paint. For color, I prefer white or some very light shade; but I have not succeeded in finding any one kind that seems to excel all others. O. O. POPPLETON.

If for economy only, it is doubtful if painting hives pays; but when we add appearance to economy, then it may do so. In painting hives I use two coats of lead and oil, and one (the last one) of the Averill mixed paint. G. M. DOOLITTLE.

I think, if economy alone is considered, we would not paint our hives; but when we include looks, and freedom from checks, etc., it pays well to paint. The same may be said of our houses and other buildings. Man does not live by bread alone.
A. J. COOK.

I think unpainted hives will last long enough for practical purposes; but in many instances it is advantageous to have all hives exactly alike in appearance, and this can be secured only by painting. I prefer the lead-and-zinc mixture.
W. Z. HUTCHINSON.

I think best to paint. We use a variety of colors. White is not a durable paint, but it has other qualities in its favor. It doesn't heat like dark colors; bees keep more quiet in them. I don't like to paint hives too dark—it makes them too hot.
E. FRANCE.

I have lately come to the conclusion, that, if I were sure I would not change any hives before they were worn out, it would be economy to paint them. Brown mineral paint has lasted well.

C. C. MILLER.

Yes, it is much more economical. If the lumber of an unpainted hive doesn't rot in two or three years, it will draw open at the corners, and will be pretty weather-checked, and the shrinkage is very often a drawback. Pure white lead and raw linseed oil for first coat, and a very little turpentine added for the second coat. P. L. VIALLON.

1. Yes; 15 cts. every five years will keep my hives (two stories) well painted, and I think they will last nearly twice as long, to say nothing of looks; and a pure white is cooler for bees in extremely hot weather. 2. There may be something better than lead and oil, but I have not experimented with other paints. R. WILKIN.

I believe it is much more economical to keep hives well painted, but I am not *sure*, for I have had no experience with unpainted ones. I have hives that are now almost as good as new, that have been in use thirteen years, having been painted twice, with one coat of paint each time. I have found white lead the most durable.

DR. A. B. MASON.

The hives I prefer are made wholly of unplaned lath, which can not readily be painted. I cover them with a binding of cheap muslin, which lasts about as long as a coat of paint, and costs less. For planed hives I know of nothing better than good white lead and oil. I suspect, however, that ten dollars a year will maintain more hives if spent for lumber alone than if spent for paint and lumber.

E. E. HASTY.

Unless you are in a locality where pine lumber is plentiful and exceedingly cheap, or you are continually changing the pattern of your hives, I am quite sure it pays to paint, as a matter of economy in preserving the hives. Another point: That of drawing the sun's rays and thus overheating the hives in summer. I would paint any light color if I expected to keep the hive long enough to turn dark by exposure. The cheap mineral paints are most durable, but darker than I like to have my hives.

JAMES HEDDON.

Isn't it wonderful, to see how the ideas of great men run in parallel channels? Almost every one agrees that it is probably better economy to paint hives than to let them go unpainted, all things considered. At the same time, our good friend Hasty lets out the fact that he is still using hives made of unplaned lath. I noticed carefully to see if there was not somebody who would tell us that bees would *winter* better in hives made of unplaned or unpainted lumber; and when I read about friend Hasty's unpainted lath hive I expected to hear him say, in closing, that bees wintered all right every time in these hives, when they suffered badly in hives planed and painted, and made with tight joints. Isn't there just one left among us to defend the old straw hive on this score? or has the straw hive been laid away, safely and securely, for all time to come? Most of us have had experience in regard to the advantage of hives painted white, rather than other colors, especially where they are to stand out all summer in the open sun.

JUVENILE DEPARTMENT

Every boy or girl, under 15 years of age, who writes a letter for this department, CONTAINING SOME VALUABLE FACT, NOT GENERALLY KNOWN, ON BEES OR OTHER MATTERS, will receive one of David Cook's excellent five-cent Sunday-school books. Many of these books contain the same matter that you find in Sunday-school books costing from $1.00 to $1.50. If you have had one or more books, give us the names that we may not send the same twice. We have now in stock six different books, as follows; viz.: Sheer Off, Silver Keys, The Giant-Killer; or, The Roby Family, Rescued from Egypt, Pilgrim's Progress, and Ten Nights in a Bar-Room. We have also Our Homes, Part I., and Our Homes, Part II. Besides the above books, you may have a photograph of our old house apiary, and a photograph of our own apiary, both taken a great many years ago. In the former is a picture of Novice, Blue Eyes, and Caddy, and a glimpse of Ernest. We have also some pretty little colored pictures of birds, fruits, flowers, etc., suitable for framing. You can have your choice of any one of the above pictures or books for every letter that gives us some valuable piece of information.

CONDUCTED BY ERNEST R. ROOT.

THE BOYS' BEE-HIVE FACTORY.

SAM GETS INTO TROUBLE WITH BAD BOYS.

THE next day, as the two boys were coming home from school they were talking of the mischief done to their work-shop, as recorded a month ago.

"Let's commence to slick up and put things to rights right now," said Sam.

"I can't," replied Jimmie; "three loads of wood came to our house to-day, and ma says I've got to carry it into the wood-shed and pile it up."

"Well," said the other, "I suppose I shall have to straighten things up alone. I don't care; it was awful mean, after we had things in such nice shape, for some mean scamp to come and undo it all."

"We'll pay him back, anyhow," said Jimmie, with a knowing look.

"I hope so," replied his companion. Sam knew that his mother would not sanction this intention, but he did not propose to tell her what they two had agreed to do.

When he reached home he proceeded to the barn-loft. To clean up and arrange things in their proper order after his enemies was not a pleasant task. Sam continued to toil on, but not with any very great degree of patience. The more his mind dwelt on it, the more disturbed he became.

"Yes," thought he, "I will get even with them yet."

While he was thus engaged he thought he heard laughing. He listened, but heard nothing unusual. Again he thought he heard laughing, followed by a thud and a splash, as if mud were being again thrown against the side of the barn. He kept silence for a few minutes, to reassure himself. There could be no mistake. The ones who had caused him this trouble were at their old trick again. Cautiously he tiptoed to a crack in the side of the barn. He had been working for a matter of an hour or so, and it was now somewhat dark.

"Humph!" said he, "I wonder if they think we can't tell who they are now. If they do, they are mistaken. There is Jake and two of his friends, as sure as I live."

More chunks of mud were thrown, and more laughing was indulged in outside.

"Let's see if we can bust his old windmill this time," said their leader; whereat he hurled a half-brick. Sam, in his hiding-place, heard the brick perform its intended mission successfully. He was so angry that he trembled quite visibly.

Seeing the result of this, there was another aggravating giggle from outsiders.

"My! I'll bet Sam'll be mad when he sees his old windmill in the morning," said one of the boys. "I'd like to see him when he comes out to-morrow."

"I'll give you a chance then," yelled out Sam, through the crack. The latter hurried downstairs amid the jeers of the boys outside. Something whispered to Sam that he was not about to pursue the right course; that he would grieve his mother, and call forth the censure of his father. At the foot of the steps he hesitated; but Jake, daring him to "step off the premises," Sam yielded. He could not take a dare. Jake tauntingly inquired what he was "a going to do about it."

"Do about it!" said Sam; "I am going to thrash you."

His opponent needed no second invitation, and the other boys said, "Let 'em fight!"

It is not necessary to enter into details here. It is enough to say that Sam was engaged in a disgraceful row, putting himself upon the level of boys of a bad name. Instead of thrashing, as he boasted he would do at the onset, he was considerably worsted. His father, hearing the disturbance caused by the other boys, indicating their approval whenever their leader got in a "good hit," appeared suddenly in the midst of them. The mischief-doers immediately fled. Sam's eye did not look exactly as if it had been stung, but it plainly showed to his father that it would soon bear the marks of disgraceful coloring. I suppose that, in common schoolboy parlance, it would be called "a black eye." His father said nothing just then, but conducted him in silence to the house. For the first time, Sam began to feel his remorse keenly, and his disgrace not less so.

"Why couldn't I have foreseen this?" he thought. It was not the disgraceful bruises he had received, but it was the bruises of conscience that hurt him. The manliness of fighting, "getting even," and never taking a "dare," now dwindled into utter insignificance. Why these traits of character should ever have appeared noble and praiseworthy was beyond his comprehension. "Why wasn't my eyes opened before? where was my senses when I consented to stoop so low?" he thought.

While these thoughts were stinging, his father conducted him to his mother's bedroom. One glance showed that his mother was in tears, and that before her was her open Bible. Sam thought he felt his remorse before, but now he broke forth in truly penitent sobs. He could keep a calm face under any other circumstances, but this was too much for him. He then and there vowed he would never again so grieve her. When he had calmed she read to him from that Book, and never before were words so solemn and so true.

"He that is slow to anger is better than the mighty; and he that ruleth his spirit, than he that taketh a city;" also, "A violent man enticeth his neighbor, and leadeth him into a way that is not good." Then she gave him such a talk as he never heard before—not scolding, not fault-finding.

The following day at school, Sam's eye was the object of much ridicule. After school, poor Sam ran across his evil companions who had been the cause of his sorrow. Jake again dared him to fight, and tauntingly insinuated that he could "lick him with his left hand." Sam felt the old desire, but he saw his mother, and the words, "He that ruleth his spirit is greater than he that taketh a city."

"You're afraid!" hooted the boys. "He is a good little boy; his mother won't let him! Apron-strings! apron-strings!" All this Sam bore bravely.

Just then Jimmie appeared suddenly upon the scene. He made a dive for Jake; but before the former could carry out his intentions, the latter took to his heels, Jimmie in full pursuit. Jimmie was the peer of any of the boys, and Jake knew it.

JUVENILE LETTER-BOX.

"A chiel's amang ye takin' notes;
An' faith, he'll prent it."

REVIVING CHILLED BEES AFTER NINE DAYS.

The facts seem to indicate so far, that, if the bees are actually frozen—that is, subjected to a temperature of 32 degrees, they will not live over three or four days; if kept in a temperature very much *below* freezing or near zero they can not be revived after even a few hours; still further, when kept *above* the freezing-point they can be revived after a much longer period. The following, from a grown-up juvenile, is a case in point:

I have been interested in your boys freezing bees; but I took the combs, hive, and all, from a queenless colony which lived nine days without a single drop of food ever being gathered, except water; weather was about 40° above zero.

Molesworth, Ont. CHAS. MITCHELL.

10,000 COLONIES THE PROPERTY OF ONE MAN.

Mr. Bittenbender has over 100 bee-hives, J. W. Kent has 12. Mr. C. C. Amos has one stand. Isaac Wilber has 10,000 stands, and E. B. Buhken has 15 stands, and W. Teeter has 19. S. M. Teeter has 18 stands. B. R. TOPPING.

Missouri.

Your letter is a little astounding, my young friend, where, after saying C. C. Amos has one stand, Isaac Wilber has 10,000. It seems to me you exaggerate. I have known boys to make a story a little bigger than it is, before. Don't you mean that Mr. Wilber secured 10,000 lbs. of honey? or did you forget and put on two too many ciphers?

Capt. J. E. Hetherington, Cherry Valley, N. Y., I believe has the largest number of colonies of any one man in tho United States, and he is said to have only 2700. Perhaps the Mr. Wilber will tell us just how many colonies he (Wilber) does have. Possibly it will turn out like the story you have all heard, of the boy who told his mother that he saw 10,000 dogs running around the house. "Oh, no!" said his mother, "not as many as that." "Well," persisted the young hopeful, "I saw 1000." His mother continued to narrow him down until he stuck to it that he at least saw the *tracks* of *one* dog.

A BOY WHOSE PA HAS 200 COLONIES IN THE CELLAR.

Pa has kept bees since he was 15. He has now 200 swarms in the cellar. He gave my brother and me each a swarm. We are going to learn to take care of them. I like bees, and don't mind the stings. I help my pa work in his yard.

CLARENCE YATES, age 9.

Randall, Montgomery Co., N. Y.

THE BEES WENT OFF.

We have three swarms of bees. We bought two swarms. They both swarmed two times. The first was a big one. They came out and flew awhile, and alighted on a tree near by. We got a hive and sawed the limb off, and shook them off on a sheet. They marched in the hive as fast as they could. They began to work, and in a day or so they came out and went off. The next one came out the same day, and went back. They came out in a week or so, and alighted in two different places on the same tree. We have one of them yet; the other one, the worms got in and ate them up. The combs were all moldy. One of the other colonies did not fly as it should. We looked at it, but we could not see any thing in it. One of the old hives got cracked, so we put them into another hive, and they went off, but we did not see them go. I have seen them gather stuff from sunflowers to make their combs out of. They get honey from the yellow flowers which grow in low wet ground. I have seen lots of them buzzing around among them.

JOHN HOWER, aged 10.

Macy, Miami Co., Ind., Jan. 25, 1888.

I am glad to see you making observations, friend John; but you are drawing wrong conclusions. The stuff the bees gathered from sunflowers was not to make combs of. It is the pollen, or bee-bread; and Prof. Cook tells us the old bees eat bee-bread and honey that they may be able to secrete rich milk for the baby-bees. That is what the stuff is for that you saw.

DO BEES HEAR? WHERE DOES P. BENSON LIVE?

Have bees got ears? I want you to tell me the address of P. Benson. I like to read his letters. We have got 35 hives of bees now. We have not got any honey for winter. Pa has doubled up a good many. We have got a bee-killer. It is a bird. We call it the king-bird.

CORA E. LAMPSON.

Pierpont, O., Dec. 8, 1887.

It is pretty well established that bees hear, though it is not so certain that they have ears corresponding to ours. Some of the big bee-men think their antennæ, or feelers (perhaps you will call them their horns) answer the purpose of ears. — P. Benson lives way out west. He doesn't want his address published, because it would bring him too much correspondence, and he doesn't care to be bothered with letters of inquiry from common folks like you and me. Since he has got him a wife in his "Pallace Home," he won't write any more.

HOW TO DESTROY BUMBLE-BEES' AND YELLOW-JACKETS' NESTS.

Take a jug; fill it about half full of water, and set it down gently as near the nest as you can. Then take a pole, say six feet long, and poke them up. The more you poke them, the more they will go into the top of the jug. They will go buzzing around the top, and pretty soon they will go into the top of the jug; then when you take it up to look at them you want to be sure to look for the queen; and if you find her it will be sure to destroy the nest.

P. S.—Then stamp the nest when they are out of it.

ROBERT DAWSON, age 10.

East Dayton, Tuscola Co., Mich.

But, friend Robert, why should we destroy bumble-bees' nests? They do no real harm; on the contrary, they are a real benefit to farmers. Only the other day I was reading an item in the paper, that the Australian government had or was going to take measures to have the American bumble-bees imported to their country. These bees are to fertilize the red clover, so that they may be able to raise good seed. Your method of catching bumble-bees has been mentioned before.

FACTS ABOUT THE BIBLE.

A prisoner, condemned to solitary confinement, obtained a copy of the Bible; and by three years' careful study he obtained the following figures:

The Bible contains 3,586,489 letters, 773,692 words, 31,173 verses, 1189 chapters, and 66 books. The word *and* occurs 46,277 times. The word *Lord* occurs 1855 times. The word *reverend* occurs but once, which is in the 9th verse of the 111th Psalm. The middle verse is the 8th verse of the 118th Psalm. The 21st verse of the 7th chapter of Ezra contains all the letters in the alphabet except the letter J. The finest chapter to read is the 26th chapter of Acts. The 19th chapter of II. Kings and the 37th of Isaiah are alike. The longest verse is Esther 8: 9. The shortest verse is John 11:35. The 8th, 15th, 21st, and 31st verses of the 107th Psalm are alike. Each verse of the 136th Psalm ends alike. There are no words or names of more than six syllables.

CHAUNCEY YATES.

Randall, N. Y., Jan. 22, 1888.

Very well done, my little friend. Who will be the first to remember these facts? But why do you say the 26th of Acts is the *finest* chapter to read? Haven't millions read the 5th of Matthew, 14th and 17th of John, and the 2d of Acts, a great deal more than the 26th of Acts? But I think that, instead of having *one* favorite chapter that towers up above all the others, like a mountain above the plain, we should learn to love all the other chapters more and more until we get the plain as high as the mountain. Every chapter has its own use, like the members of the body, and should be used in the way God designed.

OUR HOMES.

And the glory which thou hast given me I have given them; that they may be one, even as we are one: I in them and thou in me, that they may be perfect in one.—JOHN 17: 22, 23.

I SUPPOSE that most of the readers of GLEANINGS have noticed the wonderful way in which a colony of bees works together for the good of the multitude that fill their particular hive. No doubt you have remarked the *oneness* of feeling and sentiment that seems to pervade their little bodies. If an enemy comes on the scene, no bee stands back and suggests that some of his comrades give their lives for the salvation of the home. The first bee that gets a glimpse of the intruder, recklessly throws his life away, as it would seem. The others, as fast as they catch a glimpse of what is going on, do the same thing. If you should fall into the fire, you would not think of putting your hand behind you to save the hand from being burned, and thus allow your face or vital portions of your body to encounter the fiery element. The hands are thrust forward to shelter the rest of the body, especially the face and eyes, without a particle of reflection as to what may be the fate of the hands. Every part of the body is used to its utmost in defense of its other members; and so this wonderful little commonwealth inside of the bee-hive uses its separate members in the same way. With many of you, doubtless, during these February days, the bees are going forth for pollen, and possibly for new honey. The bee that gets the first load of nectar by no means thinks of saving it for himself, or for, perhaps, a few particular acquaintances. He puts out his tongue to the first bee he meets, and so on to the rest as far as it will go. If I am correct in my conclusions, it is by this means that he makes known to his mates that honey is to be had again abroad in the fields. The same way with pollen when pollen is scarce. It is divided up so as to be spread among as many needy ones as possible. In fact, I am not sure but that a single load of pollen gives a taste to almost every bee in the hive. Their joys and sorrows are shared in common. When the queen is lost they all set up a mournful refrain (I do not know whether the drones participate or not—they are queer chaps any way, and we don't know very much about them). In fact, a hive of bees is a most complete picture of unselfish devotion, and

——by a rule in nature, teach
the art of *order* to a peopled kingdom.

There is no ambition, no greed, no jealousy, no envy, no strife, among the members of any one hive. The inmates of the hive do *steal* sometimes, it is true, but they do not steal from each other. Every one of the forty thousand that may possibly make this little populace, is a true soldier. He could no more quarrel with his brothers and sisters than your right hand could quarrel with the left, or feel jealousy or bitterness.

Last Sunday evening, at our young people's prayer-meeting I was almost startled by a remark something like this by one of the younger ones. I can not remember the exact words, but the idea was something as follows:

"A new thought has come to me during the past few days, that I will try to tell you. It is this: Jesus has need of *me;* yes, even my poor self, in just the same way that I have need of my two eyes. Without my eyes I could do comparatively nothing; and in the same way, without us Jesus could do but comparatively little. We are a part of *him*, in the way our eyes or hands or feet are a part of our bodies."

I confess that I felt somewhat inclined to think our young friend was a little off the track right here, or that she had presented the truth she had in mind, almost too strongly. I was still more surprised, however, to hear first one and then another in different parts of the room repeating different texts of Scripture, backing her up, as it were, in her position—in fact, clinching nails, to make the truth stronger. Perhaps I can remember a few of the texts:

For as the body is one, and hath many members, and all the members of that one body, being many, are one body, so also is Christ.—I. COR. 12: 12.

And, again, in the same chapter, verse 21:

The eye can not say unto the hand, I have no need of thee: nor again the head to the feet, I have no need of you.

At this point an elderly man—that is, elderly in years, but not in the love of Christ Jesus (a new convert)—arose and said, with imperfect English, for he is a German by birth,—

"My friends, since I have been one among you I have been pleased to notice how Christians seem to be united, either in joy or sorrow. A few weeks ago, when so many of these younger ones united with our church, happiness beamed from every face, from the youngest to the oldest; and a week or two later, when a terrible calamity fell upon one of the members of our church, every face showed sadness and sorrow. What affects one of us, seems to affect us all."

Just then a boy at my elbow, and one who has lately come into the church, repeated verse 26 of this same chapter:

And whether one member suffer, all the members suffer with it: or one member be honored, all the members rejoice with it.

Now, friends, I hardly need point out to you the resemblance between a hive of bees and the church of Christ; that is, if we could have a model band of Christ's followers, so perfect that the spirit of Christ and nothing else should actuate each and every member, then we should have a little commonwealth like a hive of bees.

What a power such a band of workers would be here on earth! Where you see real, healthy, live, active church-members, you get a glimpse of the possibilities in this direction. A few months ago our people took up the matter of saloons in our town. There had been revival meetings in all the churches; yes, more: there had been for some time regular gospel temperance meetings. Christian people from all the churches joined in. People who loved temperance, sobriety, and truth, who were not members of any church, came and took hold of the work also. Different sects and denominations were forgotten; different political convictions were either forgotten or dropped for the time being. We worked for deliverance from the common enemy, just as bees work against an enemy that threatens them. What was the result? Why, the saloon-keepers were routed by a tremendous majority. Now, I do not mean to say that the churches of Medina have got to such a height of Christian unity that they are free from sins common to humanity. In one sense they have got only a little way toward perfection through Christ Jesus. But in going even so far we have done a great work; and as I think of it I get glimpses of the greater and mightier work that may be done through a Christian unity that should pervade our whole nation. May God speed the day when not only denominations, but all the world, shall unite in saying, "Thy kingdom come, thy will be done, even on *earth* as it is in heaven." Well, now, if these young Christians taught me a great and valuable lesson by their faith and their Scripture texts, our good pastor astonished me still more at the close of the meeting by another wonderful application of the text which I had never before fully understood. I do not think I fully understand in now, but I do think I get a wonderful glimpse of a great, great truth. In the 17th chapter of John, Jesus says, "And now, Father, glorify thou me with thine own self, with the glory which I had with thee before the world was." I have often wondered what that glory meant. It was something bright and grand, I feel sure. Just think of it, dear friends—what a stupendous thought! My stenographer suggested, as I repeated the verse, that "before the world" was a great while ago. Well, this matter of Christ's glory — "a glorified Savior," and "to the honor and glory of Christ," and such like expressions, are very frequent in the Bible. What does it mean to glorify Christ? Every young Christian knows what it is to honor Christ. It is to so act and so do that the cause which we profess to love may be honored. You may use the word "glorified" in the same sense, if you choose. We glorify Christ by our own lives, by our own actions, and by our own behavior: not especially by living lives free from sin, for this is a pretty hard matter for average men and women, and boys and girls. We are sinful, and perhaps always will be; but we honor Christ and glorify him, by being truly penitent when we find we have sinned. We are told that David was a man after God's own heart. Well, now, David, at least once in his life, was a very bad and wicked man; in fact, he committed *terrible crimes;* but after those crimes he glorified God by honest, true penitence. He bowed his head submissively to the terrible punishments which God saw fit to visit upon him. He glorified the Savior when he said, "Create in me a clean heart, O God, and renew a right spirit within me." He glorified God by the confession that his heart was all bad; that it needed Christ's *renewing* power before he could ever again be fit for any thing. David did not know Jesus then as we do now; but I can readily believe that Jesus was the intercessor for David even then, as he is for us.

Now, friends, if Christ is to be glorified by our poor lives, think of the responsibilities that rest upon us. If the glory he prayed for in that wonderful prayer of his near the close of his life was dependent on the way those whom he came to seek and save shall behave themselves, what a responsibility rests upon us! Perhaps all we can do is simply to accept him, to bow at his feet, and confess him as the Christ, as the son of the living God, as Peter did. He is glorified, even by this act. Yes, even though we be poor, weak, and sinful. Why, dear brothers and sisters, the penitent thief, shut in by the walls of our penitentiaries, may glorify him by honest, true penitence, by confession and restitution, where the latter is possible, for I believe there can be no honest penitence without restitution, so far as the latter may be possible. In that same prayer, Jesus says, "I pray not that thou shouldst take them out of the world, but that thou shouldst keep them from the evil." He is to be glorified through the faithfulness of these poor humble followers. And, again, he says, "Neither pray I for these alone, but for them also who shall believe on me through their word." We glorify Christ by accepting him when he has been presented to us by our fellow-men. And, again, "That they all may be one; as thou, Father, art in me, and I in thee, that they also may be one in us." And, again, "And the glory which thou gavest me I have given them." Why, dear friends, the glory is not to be his alone, but it is to be ours too. And now I have got down to my text—"I in them and thou in me, that they may be made perfect in one." The last half of the verse reads as follows: "And that the world may know that thou hast sent me, and hast loved them, as thou hast loved me." Now, I hope you will have patience with me, dear friends, if I give you the whole of this chapter; but keeping in view what I said in my opening words about the bee-hive, and the remark of the young sister at prayer-meeting, see the following: "Father, I will that they also, whom thou hast given me, be with me where I am; that they may behold my glory which thou hast given me." You see, even this glory which he speaks of we are to share with him. And now comes a wondrous thought that is almost too great for the human mind to contemplate: "For thou lovedst me before the foundation of the world." It seems to me right here that Jesus begins to get glimpses of things he had not known before, just as we get glimpses of heavenly things as we approach the close of a life that has been given to Jesus.

There is only one more verse at the close of this wonderful prayer. Some infidel writer has said, in speaking of Christ, that he was a poor disappointed and discouraged man—disappointed at every turn; and I do not know but that he uttered a greater truth than he knew. Jesus was not disappointed in himself, nor was he disappointed in any ambitious thoughts he may have had. The disappointment, dear friends, was in *us*. He came here to this world to save us; and he thought that, by pleading with us personally, and giving his life for our poor unworthy selves, we certainly could be induced to turn from *darkness* to *light*. He found us, perhaps, harder-hearted than he had anticipated, for he was human as we are. In some respects he was disappointed and discouraged. In that last verse of the prayer he says, "And I have declared unto them thy name, and will declare it; that the love wherewith thou hast loved me may be in them, and—I—in—them."

GETTING GOOD CROPS FROM GROUND NOT WORTH OVER A DOLLAR AN ACRE.

WHAT A VISITOR SAW TO INTEREST HIM ON OUR GROUNDS.

NOW please commence my GLEANINGS again, and do not stop until I tell you to. I can't do without it, as I keep bees, and raise vegetables for a living. I have a greenhouse, 18x30, built on the plan of yours. A year ago last summer I made a trip to Medina on purpose to see your greenhouse, after looking in vain to find something that suited my fancy, and I was not long in deciding yours was what I wanted. You were away from home, but Ernest showed me the buildings, then we visited the apiary, the carp-pond, and so on, over to where the White Plume celery grew; and such celery I had never seen before. Although it was not later than the first of August, its beautiful white leaves were almost fit for market; and the sight of those vegetables growing then was a wonder to me.

I have been a gardener for a number of years, and always thought that light sandy soil was necessary to grow good vegetables; but here were all kinds of vegetables, and it seemed to me they were just jumping, and every plant looked as though it were trying to outgrow the one next to it, and all this on soil that I would not pay *one dollar per acre* for, for gardening purposes. Well, it proved to me that "eternal vigilance" would accomplish any thing, for I could see what had been done to bring that hard soil to the right condition.

I felt well paid for that trip to Medina, and have always felt that I was under obligations to you for what I learned that day. My greenhouse was a perfect success. I raise two crops of lettuce each winter, besides starting plants for early vegetables. Last year we carried the first home-grown tomatoes to the Elyria market, and they brought over *five dollars* per bushel. I raise the Grand Rapids lettuce, and have had the seed two years. I think it is the only lettuce that will grow perfectly healthy under glass. The description you give of it in December GLEANINGS is perfect, and I do not wonder you were clear carried away with the sight of it. I have raised single stalks in the greenhouse this winter, weighing 12 ounces. Out of doors the heads will weigh a pound and over before running up to seed. If you want me to, I will tell you how I raised $10.80 worth of this lettuce on a piece of ground 12 feet square last summer, out of doors, *without glass* or other covering, and this was the wholesale price at Elyria in October, when the dealers laughed at me for bringing lettuce to market.

I inclose two packages of the seed of this wonderful lettuce—one is the original seed I got at Grand Rapids last winter, and was grown on the Eugene Davis place that he sold to Mr. Coykendal a year ago last summer. The other, I grew last summer from this seed. I obtained this seed in an honorable way, without any restrictions whatever, and I make none to you. Do not doubt the seed I send you, as it is genuine. I was at Grand Rapids last winter, saw the lettuce growing. I saw it on the market, and ate of it. I have raised one crop this winter, and have another growing now, which will be ready in March. O. J. TERRELL.

No. Ridgeville, Lorain Co., O., Jan. 27, 1888.

Friend T., in your communication above you pay me one of the finest compliments I have ever received in my life, when you say that the ground naturally is so poor, where you saw these fine crops, you would not give a dollar an acre for it. I knew I was working under disadvantages when I commenced—that is, so far as soil is concerned; and if I have proven that others, under like circumstances, may, by energy and perseverance, do well, I shall think it greater success than the crops I have raised; that is, if I can succeed in making others who are, perhaps, unfortunately situated, feel encouraged, and by this means tell them "what to do and how to be happy while doing it," I shall have accomplished something more than the mere making of dollars and cents. Market-gardeners tell us that a hundred loads of manure to the acre is not too much; but I have never used half that amount. I am glad you were pleased with our little greenhouses; for these very greenhouses are a large factor in enabling one who loves to work at gardening to get to work before he could otherwise do any thing; in fact, the success of the crop, and especially the matter of getting large prices, very much depends upon the plants being started and well rooted before we could take them out of doors. I am very glad to hear you give so good a report from the Grand Rapids lettuce.

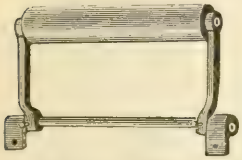
OUR OWN APIARY.

CONDUCTED BY ERNEST R. ROOT.

ANOTHER IMPROVEMENT IN FOUNDATION-MAKING.

THOSE who have had experience in foundation-making will doubtless remember that it is a difficult matter to make the sheets of wax roll out uniformly without there being dark streaks here and there, as a result of a little wrinkle, just before it passed between the rolls. These "dark spots" reveal themselves more plainly when the foundation is held up to the light. A careful examination shows that these shaded portions have higher side walls, in consequence of a larger amount of wax, as the result of a partial fold from the wrinkle.

This can be remedied somewhat if the one feeding the sheets of wax into the rolls takes great pains to see they are fed straight, and that the sheets do not come in contact with both rolls at a time before they should. The foreman of our foundation-department, observing this, conceived the idea of having the sheets first pass over a wooden roller placed upon a level with the upper metallic roll, in such a way as to have the former drop down out of the way while the sheet is being started in. When this is accomplished, the wooden roller is elevated to a position where it not only keeps the foundation from the lower metallic roll, but causes it to be fed through without a wrinkle, and, consequently, with no "dark spots" in the finished foundation.



A DEVICE FOR SECURING GOOD SHEETS OF FOUNDATION.

The accompanying engraving will make the matter all clear. You observe, that there is nothing but a wooden roller, pivoted to two cast-iron arms, the latter fastened to a little shaft that passes through a pair of lugs. These are to be screwed down to the frame of the machine in such a way that the wooden roller may be revolved to a level, and parallel with the upper foundation roll; and, when desired, from this position down out of the way, resting on the table of the machine.

While the device above represented may be adapted to almost any make, it is designed more especially for mills of our own manufacture. By simply removing two screws, the device can be attached by means of two longer screws, in a twinkling, ready for working order. Those of you who have our machines will see the tops of two round-headed screws just above the two front legs. The screws in question secure the front leg of each upright to the corners of the horizontal frame. These screws are removed: the two lugs of the device are then so placed that their holes correspond to the holes from which the screws have just been taken; and the longer screws passing through the lugs through the legs of the uprights, into the horizontal frame, hold all secure. The wooden roller is now ready for use.

After having used this device on our mills for two or three weeks we find it is a practicol success. With this roller, almost every sheet comes out without tear, or injury of any kind; whereas in the old way, sometimes in making very wide sheets perhaps one sheet in four would be spoiled in rolling. We will send them out for 50 cts. apiece, complete. When sent by mail, the postage and wrapping will be 42 cents. In ordering, state the size of your mill. All our mills to be sent out in the future will have them already attached, without extra charge.

THE CONDITION OF OUR BEES.

So far as examined, our bees outdoors in chaff hives are in good shape, none being lost so far. One or two show signs of dysentery, and possibly may not survive.

THOSE T-TIN SUPPORTS.

We *think* we have something which may be superior, in point of strength and cheapness, to the strap-iron supports. It is simply a staple, or double-pointed tack, bent at right angles about midway of the length of the staple. If it proves to be a success, further mention will be made of it later.

GLEANINGS IN BEE CULTURE.

Published Semi-Monthly.

A. I. ROOT,
EDITOR AND PUBLISHER,
MEDINA, OHIO.

TERMS: $1.00 PER YEAR, POSTPAID.

For Clubbing Rates, See First Page of Reading Matter.

MEDINA, FEB. 15, 1888.

In the world ye shall have tribulation; but be of good cheer: I have overcome the world.—JOHN 16: 33.

DON'T fail to read my "cabbage-seed" story on page 150.

DEATH OF ARTHUR TODD.

JUST as we go to press we have notice that Mr. Arthur Todd died at Philadelphia on the 11th inst. No further particulars given.

SEED OF THE CHAPMAN HONEY-PLANT IN THE HANDS OF THE GOVERNMENT.

FRIEND Chapman sends us the following:

A. I. ROOT:—The Chapman honey-plant has been placed upon the "free list." All persons desiring the seed can procure it by addressing Hon. Norman J. Colman, Commissioner of Agriculture; or should they desire a larger quantity than the Department of Agriculture furnishes, for experimental purposes, undoubtedly they can get it through their representative in Congress. I have been paid for the seed I furnished the Department, and I want the tax-payers to get the benefit due them. It is to be hoped that all readers of your journal will take advantage of the opportunity, and receive free some of this seed, and not permit it to waste in the Seed Department at Washington. H. CHAPMAN.
Versailles, N. Y., Feb. 2, 1888.

THE BEE-KEEPERS' REVIEW.

WE are sorry to hear of any delay in the above, notice of which we get from the postal card below:

MR. ROOT:—Will you have the kindness to inform your readers, that our little girl has been sick two weeks with bilious fever, and Mr. Hutchinson one week with the same disease? Both are improving; but as the result of their sickness, the February Review will be a little late. MRS. W. Z. HUTCHINSON.
Flint, Mich., Feb. 6, 1888.

The following comes a little later:

Please discontinue the Review advertisement for the present. Mr. Hutchinson is still seriously ill, lung trouble being added to the other disease. His recovery will, of course, be prolonged. MRS. W. Z. H.
Flint, Feb. 13.

THE FIRST WHITE-CLOVER HONEY OF THE SEASON.

FRIEND J. W. Winder, of New Orleans, La., sends us genuine white-clover heads, also some branches of the willow, this 13th day of Feb., and writes in regard to them as below:

FRIEND ROOT:—You said, "Where shall the first honey come from?" Please find some evidences inclosed, from which my bees are putting forth a manly effort to secure a new supply. An early spring is ushered in upon us. Bees commenced working on willow and white-clover bloom in January, and I think they must have collected the first honey this winter.
New Orleans, La., Feb. 9, 1888. J. W. WINDER.

Now, friend W., when you get some honey extracted from the white-clover blossoms, let us know, and we can probably report you as having the first white-clover honey in the United States, for 1888.

POLLEN FOR BROOD-REARING.

ON page 124 Friend Cook gives us some addition to our stock of information in regard to this wonderful subject. We have long been taught that pollen is a necessity for brood-rearing—that is, brood rearing could not go on to any extent without pollen or some substitute; but I don't think that many of us have supposed the pollen was really *fed* to the larvæ. We may not have expressed ourselves just as we intended to do; but I believe the general opinion has been, that the worker-bees use pollen as a cow uses corn meal, together with her hay, to enable her to give milk for her young. This food that the nurse-bees feed to the larvæ so continually has always seemed to me a sort of milky substance, both from the looks and taste. I think somebody has suggested, that, when the larva is almost ready to be sealed up, it may receive pollen and honey, not digested as fully as that given to the larvæ when they are very small. I do not know whether this was guess in his work, or whether some competent naturalist has given it from observation. From what Prof. Cook says, however, we conclude the latter to be a mistake. Perhaps we have been at fault in using the term *partially digested* food, when we meant a secretion resulting from the honey and pollen taken by the mature bee.

SPIDER-PLANT SEED—THE DIFFICULTY IN MAKING IT GERMINATE.

THIS has always been a difficult plant to get started; and yet, strangely enough, when the seeds drop from the plant on to the ground in the open air they come up the next spring in great profusion, and this has suggested the idea that the seed needs freezing. We have usually had no trouble in getting it to germinate in the greenhouse, with a covering of sifted moss; but I regret to say, that this spring every bit of seed we have in stock, old and new, acts very much as if it were not going to germinate at all—not even a seed. Therefore, if any of the friends have any of the seed of the spider plant that they have tested this present year, and know will germinate, we shall be glad to know how much they have, and what they will take for it. We would therefore ask all who have purchased the seed of us, and have failed to get it to grow, to say so on a postal, and we will send you some seed that *will* grow. It is a queer plant, any way; but when it comes warm weather we have been in the habit of transplanting them just as we would tomatoes, any time during the summer. Even in very hot dry weather, the plants grow without a bit of trouble.

HEAVY FREIGHT BILLS, ETC.

EXPENSIVE freight and express charges is one of the great drawbacks which our customers experience who are very far away from one of the great main lines; and on this account it is a great deal better, many times, to buy of somebody nearer your own homes than to purchase of us. We always want our friends to buy where they can do so to the best advantage, whether it takes money from our business or not—that is, we feel that way when we don't backslide, and let selfish thoughts come uppermost. Now, in a line with the above idea we want to speak of a sort of branch house for a great part of our goods, kept by our friend J. M. Jenkins, of Wetumpka, Elmore Co., Ala. Friend Jenkins is a railroad man, as I may have told you before, and this helps him in the very line of which I have been speaking. He is not only a railroader himself, but he has enough of God's grace in his heart to keep him on good terms with not only the great railroads, but with almost everybody else. Where you are nearer Wetumpka, Ala., than to Medina, O., it will, as a rule, be best to trade with friend J.; but as he does not keep a full line of every thing we sell, it may be best, before sending in your order, to write for his catalogue, then there will be no misunderstanding nor disappointment.

THE NEXT PLACE OF MEETING FOR THE NATIONAL CONVENTION.

AN effort is now being made to change the place of meeting of the next National Convention from Toledo to Columbus or Cincinnati. So far there is a difference of opinion as to whether it should be held in the one or the other city. Our preference is decidedly in favor of the capital. It is true, there will be an exposition held in Cincinnati, but nothing, we believe, that will compare in magnitude or importance with the one which will take place at the capital of the State. The national encampment of the Grand Army will be held during the second week of the Centennial Exposition, and it is expected that it will march two hundred thousand men strong. Besides this there will be represented on a grand scale, national industries. It seems to us that the members of the National Bee-Keepers' Association would make a mistake in changing the place of meeting to Cincinnati instead of Columbus, although we feel sure that friend Muth could give us a right good reception in his city. The president of the association, Dr. A. B. Mason, is in favor of moving to Columbus. It is a great railroad center, and there will be low rates of travel. Brother Newman, in referring to the next place of meeting, says:

> So far the votes have been about equally divided between Columbus and Cincinnati. Let the rest of the "votes" be sent in at once, so that the matter may be decided as soon as possible.

Let all the votes go to T. G. Newman & Son, Chicago, Ills., for Columbus, without delay. Remember the date, Sept. 4th to Oct. 19th. See, also, further particulars from Dr. Mason elsewhere.

MAPLE SUGAR STIRRED OFF DRY.

IT is a great deal more trouble to make it this way, and I believe it is considered that it can not be sold at as low a price as the cake sugar, because, to stir it off dry, more water must be expelled than what is contained in the cakes; therefore we seldom get hold of much of it. Our readers, however, who remember the old times on the farm, when the pies and pudding—yes, even the tea and coffee—were sweetened with this old-time home-made sugar that could be dipped out of a bowl with a spoon, will doubtless agree with me that it beats any other sweetening ever made. When I used to help mother make garden, in the days of my boyhood, the dinner that pleased me above every thing else was what was called "bag pudden." It was made of corn meal, boiled in a bag, and the sweetening was this same stirred-off sugar, dissolved in cream. Some of the sugar would generally settle to the bottom of the bowl; therefore when the dip came around to you if you liked a little more sweetening than the rest, all you had to do was to dip the large spoon to the bottom of the bowl, and, oh my! wasn't that sugar delicious? Well, a few days ago a farmer drove up with almost a barrel full of this dry, fine maple sugar on his sled. The boys said I paid too big a price for it; but any of you who think as I do about it would be willing to pay 10 cts. a pound for it. If you want to see what it looks like before purchasing, we will send you a sample by mail for 5 cts. Of course, it is sugar made a year ago; but the stirred-off-dry keeps indefinitely without any deterioration,

SPECIAL NOTICES.

NO MORE DISCOUNTS ON SUPPLIES AFTER FEB. 29TH; 3 PER CENT DISCOUNT THE REST OF THIS MONTH.

Remember, friends, that if you order during this month you are entitled to the 3 per cent discount from our entire catalogue. On orders received during *next* month and after, *no discount* other than our regular reductions for quantities will be allowed. Get your order in *early* if you wish to save money. We have a large stock of made-up goods, and can, in most cases, make prompt shipments. The folly of waiting till the summer months before sending for supplies has been shown, over and over again. Hardly two weeks are left for the 3 per cent discount, so you'd better hustle in those orders if you intend to send them in at all.

BEE-SUPPLIES AT DIFFERENT PLACES, TO BE DISPOSED OF AT A SACRIFICE.

These are all new and first-class goods, which, for various reasons, are on our hands, away from home; and to dispose of them we offer them very low. If some of our readers, not far from where the goods are, need them, this is a good opportunity to get a bargain. Indicate which one you want, by the number as well as name.

No. 1. At Eureka Springs, Carroll Co. Ark.
100 wide frames, to hold eight 1-lb. sections. Value $2.00. Will sell for $1.50.

No. 2. At San Marcos, Hays Co., Texas.
5000 prize sections, 5¼ x 6¼ high. Value $20.50. Will sell for $17.00.

No. 3. At Vermont, Fulton Co., Ill.
30 enamel sheets for Simplicity hive. Value $2.40. Will sell for $1.80.

No. 4. At Eureka, Ill.
100 lbs. of heavy brood foundation, 8⅝ x 17⅛, for wired L. frame. Value $36.00. Will sell for $32.00.

No. 5. At Victor, Ontario Co., N. Y.
100 all-wood brood-frames. Value $1.20. Will sell for 90 c.

No. 6. At Lawrenceburg, Tenn.
One No. 1 Honey-extractor, for frames 11¼ x 12½ or less in depth. Value $6.00. Will sell for $4.50.

No. 7. At Yorktown, Delaware Co., Ind.
11 Heddon slatted honey-boards double bee-space. Value $1.00. Will sell for 75 c.

No. 8. At Augusta, Mich.
One No. 9 honey-extractor. Will take frames 12½ x 18, and smaller. Value $7.00. Will sell for $5.50.

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100 wide frames	2.00	
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7 lbs. brood foundation, 39 c.	2.73	
10 enameled sheets	.80	

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No. 13. At Eufaula, Ala.
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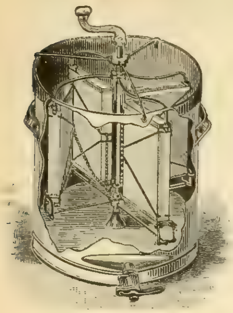

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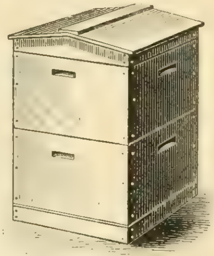

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Prices low for reliable seeds. Sold last season to Thousands of Farmers and Gardeners and no complaints. We are Growers as well as Dealers. **Originators of Acme, Favorite and BEAUTY Tomatoes, &c. Box 273, Columbus, O.**

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SEED
CATALOGUE.
1888.

Warranted Seed.

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100 COLONIES OF CHOICE ITALIAN BEES

for sale cheap. Also NUCLEUS COLONIES and QUEENS. Orders booked now. Address

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CHAFF AND SIMPLICITY HIVES FURNISHED AT A GREAT REDUCTION IN PRICE.

Nice Sections and Foundation, Specialties. A full line of Supplies always on hand. Write for our new Price List. Cash paid for Beeswax. 16tfdb

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OF ALL MANUFACTURERS.

We also make the best smoker on the market. All dealers should handle it. Send for wholesale list. It should be in every apiary; let every bee-keeper send for my illustrated catalogue, free. All implements used in an apiary, sold at reasonable rates. Beeswax bought at GLEANINGS quotations.

3-10db **W. E. CLARK, Oriskany, N. Y.**

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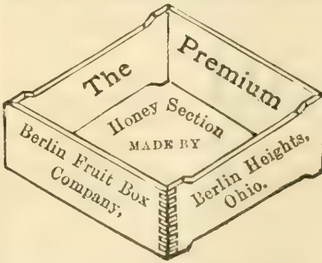
3tfdb Glenwood, Susq. Co., Pa.



These sections are notable on two accounts. One is the invariable accuracy of the workmanship. The other, the very low percentage of breakage in folding. Not unfrequently a thousand have been folded without any breakage, and that, too, without dampening. Send for reduced prices and estimates on large lots. Address as in cut. 243d.

AMERICAN CROWN

EXTRA - EARLY JERSEY WAKEFIELD

CABBAGE-SEED.

AND GROWN BY A "BEE-MAN" TOO.

I PRESUME that most of the friends have heard enough of the Jersey Wakefield cabbage to know what it is, even if they do not raise cabbages. Well, you have probably also heard of Puget Sound, in Washington Territory, as a wonderful field for market-gardening, especially seed-growing. Our older readers will remember our contributor H. A. March, who gave us such important facts in regard to the distance that bees will fly. Well, friend M. is not only a bee-keeper, but he is a seed-grower; and for several seasons he has been urging me to test his cabbage and cauliflower seed. With the multitude of cares here at the Home of the Honey-Bees, do you think it any thing strange if I forgot who sent me the cauliflower-seeds, until friend M., a long time afterward, made inquiries? All we know about it is, that the finest cauliflowers we ever saw or heard of grew from those few seeds, and they were not half cared for at that. A few days ago I sent him an order for Jersey Wakefield cabbage-seed; but it so happened that our great seedsmen had discovered the value of his seeds as well as myself, and he was sold out entirely; but he was so anxious to accommodate his old bee-friend A. I. Root that he, contrary to seed-growers' custom, let me have just two pounds of his precious "stock-seed," as it is termed in seed-growers' parlance. Do you know what stock-seed is? Well, the seed-grower who is trying to build up a reputation, strives to sow seed for his seed cabbages which are a little better than any thing else to be had. The way he does it, he goes to a great field of cabbages and picks out, say, one head in a thousand that is greatly superior to the surrounding ones. This head is made to produce seed for his own use—that is, to raise cabbage-heads expressly for seed; and, as a rule, no seed-grower ever sells any of his stock-seed. Well, because it was myself, A. I. Root, I got hold of two pounds of this precious double-extra Jersey Wakefield. What shall I do with it? Why, I think we can help friend March more, and help each other more, by dividing it up in five-cent packages, as we are doing with the Grand Rapids lettuce, and next fall we shall have some reports from friend March's cabbage-seed similar to the ones we have had in regard to the Japanese buckwheat. Anybody can have five cents' worth who wants it; but to make the two pounds go around, we can not give more than one package to each person. His stock came from Francis Brill; and, by the way, you may have a few seeds of his cauliflower at the same price. As cauliflower is very expensive, however, you can not expect many seeds for a nickel. In ordering, be sure to say "March's seed" if you want his especial strain.

A. I. ROOT, Medina, Ohio.

50 Colonies of Hybrid Bees for Sale.

I have 50 colonies of hybrid bees in double-story Langstroth-frame hives, in good condition, the winter having been very mild here. No snow. Ice a few times. I would sell them for $3.50 a colony, delivered to railroad or to Mississippi River steamers. I think they are a capital bargain for Northerners, as I can ship them at a moment's notice. Would give them as part pay for a new or second-hand 10 H. P. steam-engine and boiler. N. C. ELFER,
Pugh, Lafourche Par., La.

DADANT'S FOUNDATION FACTORY, WHOLESALE AND RETAIL. See advertisement in another column.

JEWETT POULTRY YARDS.

Rose Comb, Brown Leghorns, Straight-Comb Brown Leghorns, Straight-Comb White Leghorns, Pekin Ducks. $1.00 per sitting of 18 eggs.
4-6d **DAVID LUCAS, Jewett, Ohio.**

IMPORTED CARNIOLAN QUEENS.

I have 11 **FINEST SELECTED QUEENS,** bred by Mr. Benton in Carniola, August and September, 1887, now in my apiary, ready to ship as soon as weather will permit; never saw foul brood. One queen by mail, $10. Queen, with frame of brood and bees, by express, $12. You pay express charges. Safe arrival always guaranteed.
4-6d S. W. MORRISON, Oxford, Chester Co., Pa.

N. B. — Am booking orders now for untested queens in May.

FREE! FREE! FREE!

Don't fail to send your address on a *postal card* for the March number of the **American Apiculturist.** 'Tis filled with essays on "PRACTICAL HINTS TO BEE-KEEPERS," from the pens of the best-known writers on apiculture. SENT FREE.
Address *APICULTURIST, Wenham, Mass.*

POULTRY FOR SALE.

I have 50 head of Wyandotte chickens, thoroughbred, that I wish to dispose of immediately.
4d JOHN NORRIS, Manchester, Adams Co., O.

NICE FOUNDATION, 30 CTS. PER LB.
W. T. LYONS, Decherd, Franklin Co., Tenn.

50 PEKIN DUCKS for exchange or sale. Bronze Turkeys and Laced Wyandottes, and 7 other different varieties of pure-bred fowls. Eggs, $1.50 for 13. Turkeys' eggs, $2.50 for 11. Satisfaction guaranteed.
4-7db B. J. PURCELL, Box 47, Concord, Ky.

What is the Matter?

I wish to inform the readers of GLEANINGS that I am better prepared the coming summer to furnish bees by the pound, Italian Queens, Nuclei, Comb Foundation, Hives, Smokers, Honey-Extractors, Honey-Knives, and every thing needed in the bee-line. Send for my new Price List for 1888, now out.

R. E. SMITH,
(Formerly Smith & Jackson). **P. O. Box 72,**
4-5d **Tilbury Centre, Ont., Can.**

Oliver Foster, of Iowa.

Italian bees, 60 cts. per lb. in July, to $1.00 in April. Pkgs. with queens, brood, etc., cheap. *No foul brood near.*

BEE SUPPLIES.—Best sections, cases, and hives. Catalogue free. Send 5 one-cent stamps for pamphlet, "HOW TO RAISE COMB HONEY,"—chuck full of practical information "in a nutshell."
4-15db Address OLIVER FOSTER, Mt. Vernon, Ia.

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A Discount in Thousand Lots. Sample free.
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SQUARE GLASS HONEY-JARS,
TIN BUCKETS, BEE-HIVES,
HONEY-SECTIONS, &c., &c.
PERFECTION COLD-BLAST SMOKERS.

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CINCINNATI, O.

P. S.—Send 10-cent stamp for "Practical Hints to Bee-Keepers." 1tfdb

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PRICE LISTS RECEIVED.

Up to date we have received the following price lists:

R. E. Smith, Tillbury, Ontario, Canada; a 20-page circular of bee-supplies.

Oliver Foster, Mt. Vernon, Iowa; a 12-page circular of bees, honey, and supplies; specialty, Foster's adjustable honey-case and open-side sections.

E. Kretchmer, Coburg, Iowa; a 30-page price list of bee-keepers' supplies. On page 10 we notice Kretchmer's invertible T-rail section case.

E. S. Armstrong, Jerseyville, Ill.; a 36-page price list of Armstrong's reversible crown bee-hives. We believe that friend Armstrong has the best invertible T super of any thing we have seen, where one desires to invert. Most of the hives and supplies offered by friend A. are of his own invention.

C. W. Costellow, Waterboro, Me.; a 16-page catalogue of apiarian supplies. Friend C. also sends out an advertising card. On one side are mentioned a few facts about bees, which are intended to enlighten those who have no knowledge of some things which are familiar to the bee-keeper. On the other side is his advertisement.

William Buglass, Ontario, Canada; a 16-page pamphlet entitled Buglass' Honey Advertiser and Practical Recipe-book. It contains articles from Newman's "Honey and Food as Medicine," to whom our friend gives proper credit.

G. B. Lewis, Watertown, Wis., sends us a 10-page catalogue of bee-keepers' supplies in general. Friend Lewis is always abreast of the times, and is one of our old reliable supply dealers.

SPECIAL NOTICES.

THOSE CHOICE SEEDS.

At present writing, just about half of my two pounds of choice cabbage-seed is gone, and we have sent out perhaps 200 five-cent packages. There is also plenty of the Grand Rapids lettuce-seed left, although we have sent out over 300 five-cent packages. I mention this because many of the friends have been afraid they were too late to get a pinch.

VICK'S EARLY SCARLET-GLOBE RADISH.

These are now ready to "harvest," in the greenhouse, and they certainly do beat any thing in the way of radishes we have ever before got hold of. In fact, they are just as handsome as Vick's colored plate in his catalogue for 1888. They grow with wonderful rapidity; and almost as soon as the second leaf begins to show, they begin to make their little scarlet bulb. We have tried extra-early forcing radishes from other seedsmen, but we pronounce Vick's ahead of them all. We have added this radish to our catalogue, and can furnish the seed in 5-cent packets, or at 10 c. per ounce, or $1.00 per pound.

MONTREAL MUSKMELON.

Last season a friend brought from one of our large cities a muskmelon that seemed to me a little larger and nicer than any thing in the melon line ever before seen here. He could not tell the name of it, and neither was I able to find out what variety it was, until quite recently, when, from the description, I find it to be the Montreal muskmelon. We did not save the seed of it, because I have been told there is no certainty of melon-seeds being true, unless they are raised at a considerable distance from other members of the vine family. Will our friend W. J. Green, of the Ohio Experiment Station, please tell us whether this is true? At any rate, to be sure to have the genuine I have secured a quantity of choice seeds from one of our most expert seed-growers, which we will furnish at 5c per oz. or 60c per lb. The melon in question is not only very large, but the cavity that contains the seed is so exceedingly small that you get a large amount of edible melon, and the quality is certainly equal to any thing that it has ever been my fortune to taste. Our seed catalogues have gone off so rapidly that a new edition will be out in a few days, giving prices of potatoes and several other things of merit that I have thought best to add.

KIND WORDS FROM OUR CUSTOMERS.

Your 35-cent shears are the best I ever saw. I have tried several pairs of them. W. D. HILL.
Lake Washington, Miss.

I think that GLEANINGS is a treasure in itself, and I would not be without it for many times its cost. S. H. BEAVER.
Tamora, Neb., Dec. 15, 1887.

The goods sent the other day, smoker, etc., came in good order, and suit me well. I am pleased with them all. R. G. PINE.
Argo, Fla., Oct. 17, 1887.

I put the saw in good order. It works well, and saws as smooth as a plane cuts. To get it so, I followed the direction given in A B C, and found it to be correct. P. MCCRACKEN.
Beloit, Kan., Feb. 4, 1888.

You will please send GLEANINGS so long as you find any credit in my favor. GLEANINGS first, other things after. May God bless you in your efforts for our fellow-man's welfare. W. H. H. DOTTERRER.
Newton Mills, Forest Co., Pa., Dec. 26, 1887.

I thank you for your prompt, straightforward, and honest way of doing business. It seems to me we find your success founded in Proverbs 3:6—"In all thy ways acknowledge him and he shall direct thy paths;" and 22:11—"He that loveth pureness of heart, for the grace of his lips the king shall be his friend." AGNES IRONSIDE.
109 King St., East Toronto, Jan. 6, 1888.

I believe the great majority of people who know of you at all will readily call you a friend. I did not write to tell you that the goods shipped were all right, and were in the best shape, or as good as any one could possibly put them in, because I know you receive so many complimentary letters (and you deserve them all). I know you get tired of reading them. F. E. TARVEN.
Hephzibah, Ga., Oct. 22, 1887.

[But, friend T., we do like to get kind words when we deserve them. It encourages us, you know.]

OUR CHATILLON'S SCALE, AND HOW A CANADIAN SAVES MONEY ON THEM.

The scales came all safe and sound. Now, for the same kind of "Fairbanks" make here in Ontario we have to pay $8.00. I sent you $6.00 for two pair. Duties and entrance fees were $2.75, freight $1.10. So you see my two pair cost me only $9.85. You can see how much I saved by sending to you for them. Honey is scarce here in St. Catharines, none offering at all except what I send there. That sells at 18 cts. for comb. and 12½ for extracted.
Pelham Union, Ont., Can. D. W. MOORE.

HOW GLEANINGS SAVES MONEY FOR ITS SUBSCRIBERS.

I have been thinking, as this season was so very dry and crops poor, especially the honey crop, that I must stop or discontinue some of my papers and journals; but as I looked over them and saw GLEANINGS I said to myself I must have it, for it gives me information every year that benefits me more than several times the price of it. If it had not been for GLEANINGS I should not have had any Japanese buckwheat this year, and even one bushel would be worth to me more than ten dollars, if I could not get another. I have no honey to sell this season, but have 57 stands of bees in good shape to winter. A. J. SHEPARD.
Walker, Linn Co., Iowa.

Nothing Succeeds Like Success.

I have been successful in the production of Comb Honey for the past ten years, and my little pamphlet "How I Produce Comb Honey," briefly explains the method I pursue. By mail, 5 cts. per copy; per 100, $3 00. My illustrated price list of General Supplies, Bees, and Queens, free. Address

2-7db GEO. E. HILTON, Fremont, Mich.

DADANT'S FOUNDATION FACTORY, WHOLESALE and RETAIL. See advertisement in another column. 3tfbd

WRITE TO JOHN CALLAM & CO.,
LUMBER DEALERS, KENTON, OHIO,

—FOR PRICES ON—

BEE-HIVES, SECTIONS,
And General Supplies for Bee-keepers

New Factory. Low Prices. Good Work.

3-14 db

Headquarters in the West

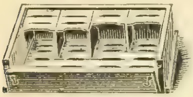
ITALIAN BEES and QUEENS.

Full colonies in 10-frame Simplicity hives, $8.00. Tested queens, in May, $2.50. Dollar queens after June 15th, $1.00. July, 90c. In the 7 years we have shipped bees and queens, have not had one single complaint.

BROWN LEGHORN EGGS.

Todd strain, No. 1 stock, with unlimited range, $1.00 per 13; $1.50 per 26. Safe arrival guaranteed. Illustrated catalogue free.

5tfd A. F. BRIGHT, Mazeppa, Minn.



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SECTION CASE.

LATEST AND BEST. Send for free catalogue. Address

FRANK A. EATON,

3tfdb **Bluffton, Ohio.**

Fillmore Decker, New Florence, Westm'd Co., Pa.

Breeder of Pure Brown Leghorn Fowls; 20 fresh eggs in season, for only $1.00; also agent for thoroughbred Cattle, Swine, and Sheep, of fine pedigree, and Silver live-stock powder. Write for what you want. Orders filled in rotation.

BEES FOR SALE

COLONIES,

Nuclei and Queens

At Living Rates.

Send for Circular and Price List to

C. C. VAUGHN,

5tfdb **Columbia, Tenn.**

MUTH'S
HONEY-EXTRACTOR,

SQUARE GLASS HONEY-JARS,

TIN BUCKETS, BEE-HIVES,

HONEY-SECTIONS, &c., &c.

PERFECTION COLD-BLAST SMOKERS.

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CINCINNATI, O.

P. S.—Send 10-cent stamp for "Practical Hints to Bee-Keepers." 1tfdb

I ARISE to say to the readers of GLEANINGS that **DOOLITTLE** has concluded to sell **BEES** and **QUEENS** in their season, during 1888, at the following prices:

One colony Italians, on nine Gallup frames, in light shipping-box.	$ 7 00
Five colonies	30 00
Ten colonies	50 00
One untested queen	1 00
Three untested queens	2 00
One untested queen reared by natural swarming	1 50
Three ditto	3 00
One tested queen	2 00
Three tested queens	4 00
One tested queen by natural swm'g	3 00
Three ditto	6 00
Tested queens, 1887 rearing, each	4 00
Extra, selected for breeding, two years old	10 00

I also have at Arcade, N. Y., 200 colonies, strong and healthy, of the Heddon noted strain of brown German and hybrid bees, on Baldwin frames, which I will sell, free on board the cars, nine combs each, in shipping-boxes, safe arrival guaranteed, during the month of May, as follows: 1 to 10 colonies, at $5.00 each; 10 to 50, at $4.75 each; 50 to 200, at $4.50 each. If they are preferred in hives, add $1.00 each for hive. Circular free, giving full particulars regarding the bees, and each class of queens. Address

G. M. DOOLITTLE,

5-13d Borodino, Onondaga Co., N. Y.

FOR THE LATEST, BEST, AND CHEAPEST

WINTER BEE-HIVES, Honey-sections, Section Honey-boxes, to fit any hive, also Comb Foundation, Fruit-evaporators, all sizes, from $6.00 up, address

LIGONIER MFG. CO., Ligonier, Ind.

FOR SALE.

Italian Queens and Bees by the Colony, Nucleus, and Pound. Dealer in Bee-keepers' supplies. Address

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(Opp. Fort Wayne Gate), Detroit, Mich.

MUSIC Taught by the United States Music-Chart, with moving tone-ladder. Chords, Sharps, Flats, Transposition of Major and Minor Scales. Equals a year in music. New, and useful to all. By mail 25c.

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APIARY-:-FOR-:-SALE.

45 STOCKS OF BEES.

Italians, Hybrids, and Blacks, in Chaff and Simp. Hives—10 chaff, 5 one-story chaff; the rest in Simp. hives; one honey-extractor (Novice), as good as new; wide frames and Moore crates for all the hives. A good bargain for some one. The bees must go. My work is away from home, and keeps me from 7 A. M. till 8 P. M. Write for price. (My bees are within 5 minutes' walk of depot. Come and see.)

ELBERT GREELEY,
Lorain, Lorain Co., O.

FOR SALE.

General Country Store, with or without stock, and apiary. Store and stock, about $3000. Postoffice in the store; apiary close by; splendid location. For further particulars, write to POSTMASTER,

5d Esofea, Vernon Co., Wis.

BEES AND QUEENS

READY TO SHIP.

Friends, if you are in need of Italian bees and queens, reared from imported mothers, I can accommodate you at the following low prices: Italian bees, ½lb., 75 cts.; 1 lb., $1 00; untested queens, $1.00; tested, $2.00. Hybrid bees, ½ lb., 65 cts.; 1 lb., 90 cts.; Hybrid queens, 75 cts. Prices by the quantity will be sent on application.

W. S. CAUTHEN, Pleasant Hill, S. C.

Wants or Exchange Department.

Notices will be inserted under this head at one-half our usual rates. All ad's intended for this department must not exceed 5 lines, and you must SAY you want your ad. in this department, or we will not be responsible for any error. You can have the notice as many lines as you please; but all over five lines will cost you according to our regular rates. This department is intended only for bona fide exchanges. Exchanges for cash, or notices offering articles for sale can not be inserted under this head. For such our regular rates of 20c a line will be charged, and they will be put with the regular advertisements.

WANTED.—To exchange new Simp. hives for furskins, either red-fox or skunk. Address
3-5db A. P. SHARPS, Exeter, Luzerne Co., Pa.

WANTED.—To exchange Wheeler & Wilson sewing-machines (new) for honey, bees, or supplies. J. A. GREEN, Dayton, Ill. 20tfdb

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WANTED.—To exchange bees in Langstroth or Simplicity hives, for disk-harrow and hand seed-drill. I also want seed-catalogues. Address
1ttdb W. H. PUTNAM, River Falls, Wis.

WANTED. — Correspondence with parties who have strawberry-plants and wish to exchange for red-raspberry-plants. E. CLICKENGER,
4-5d 117 South 4th St., Columbus, O.

WANTED.—To exchange our Price List of Bee-Keepers' Supplies, etc., for your name on a postal card. Address
4-5-6d JNO. NEBEL & SON, High Hill, Mo.

WANTED.—A bee-keeper to take charge of my apiary, on shares. ROBERT BLACKLOCK,
4-8db Kilgore, Boyd Co., Ky.

WANTED.—To exchange Gregg raspberry-plants for comb fdn., 1-lb. sections, alsike and white Dutch clover-seed. Address THOMPSON BROWN,
4-5d Cloverdale, Ind.

WANTED.—To buy or hire a small place, in a good location, for keeping bees; must be in the western part of Vermont, or eastern part of New York. F. C. FULLER,
5-6d Wendell Depot, Franklin Co., Mass.

WANTED.—Correspondence on apples, potatoes, seed-potatoes, cabbage, onions, small fruit, and fruit and produce generally. Consignments solicited. Will quote market at any time.
EARLE CLICKENGER,
4tfdb General Commission Merchant.
117 South 4th St., Columbus, O.

WANTED.—To exchange 250 colonies of bees, for horses, mules, wagons, buggies, and 4 h. p. engine, or any thing useful on a plantation.
21tfd ANTHONY OPP, Helena, Phillips Co., Ark.

WANTED.—To exchange silverhull buckwheat; also nursery-grown transplanted Scotch pine, Norway spruce, red cedar, and bearing-sized Concord grapes, for alsike clover-seed and brood fdn.
3-5d R. A. LEWIS, Cherokee, Iowa.

WANTED.—To exchange for good standard books, back numbers of bee-journals (some are out of print); poultry-journals; 6 or 7 years of the *Country Gentleman* ; 50 or 60 copies of the *Century Magazine*. All in good order. Speak quick.
5d J. P. McELRATH, Asbury, Warren Co., N. J.

WANTED.—To exchange Italian bees, queens, or eggs, from my noted strain of Wyandotte fowls, for one or more female ferrets. Address
F. BOOMHOWER, Gallupville, N. Y.

WANTED.—To exchange 100 crates, filled with 1-lb. sections, with fdn. starters. Value 30 cts. each. Will exchange for brood-frames or any thing I can use. Every one wishing early queens, send address on postal. R. H. CAMPBELL,
5d Madison, Morgan Co., Ga., Lock Box 215.

WANTED.—To exchange for any thing of a standard market value, full colonies of Italian bees on 8 L. or Simplicity frames, in shipping-boxes, at $4.00 per colony.
W. A. SANDERS, Oak Bower, Hart Co., Ga.

WANTED.—Persons who intend buying Italian queens this season, to know that they should be cautious as to the strain of Italians they get. I have those that are gentle, prolific, and as good as there are in Italy. Write for prices, or send your address on postal.
5d R. H. CAMPBELL, Madison, Morgan Co., Ga.

WANTED.— To exchange bees, queens, Simp. hives, or other supplies, for small printing-press and outfit (self-inker and power press preferred), and a good type-writer. Describe fully what you have. J. M. JENKINS, Wetumpka, Ala.

WANTED.—To exchange bees and queens for a printing-press and outfit, or offers.
Circulars free. G. D. BLACK, Brandon, Iowa.

WANTED.—To exchange one first-class incubator, the "Perfect Hatcher," for bees or wax.
H. O. SALISBURY, Geddes, Onondaga Co., N. Y.

WANTED.—To exchange Leghorn and Wyandotte eggs for Japanese buckwheat.
5d W. K. JAMES, Loudon, Tenn.

WANTED.—To work wax and exchange fdn. for bees, eggs of best strains of poultry, and strawberry-plants. C. H. McFADDEN,
Clarksburg, Moniteau Co., Mo.

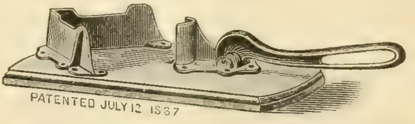
WANTED.—To exchange back volumes of GLEANINGS and *Am. Bee Journal*, as good as new, for alsike and Mammoth red Clover, or pure Plymouth Rock or Brown Leghorn fowls, or Japanese or common buckwheat; also a part of the proceeds of an apiary, for a practical man to run it.
J. W. BARLOW, Belfast, Ia.

WANTED.—Second-hand Pelham foundation-mill. State size you have, and price. Must be cheap.
5d JNO. S. REESE, Winchester, Ky.

CHEAP AND GOOD.

20 swarms of bees (hibrids) in fine order, *three dollars per swarm*, on board cars. Shipping-cases will answer for temporary hives. Bees on eight Simplicity metal-corner frames. Will sell all or a part at above prices. Also new frames, feeders, etc. A 150-pound spring scale and other fixtures, at *very low* figures. *Write at once.*

J. P. McELRATH,
Asbury, Warren Co., New Jersey.



A machine for putting together one-piece sections. It will pay for itself in one day's use. No bee-keeper can afford to be without one. Send to your supply-dealer, or to Wakeman & Crocker, manufacturers. Price $2.50. Lockport, N. Y. Correspondence with supply-dealers solicited.

E. W. PITZER, HILLSDALE, IOWA,

Producer of and dealer in Italian Bees, comb and extracted Honey; also M. B. Turkeys, Toulouse Geese, Langshan, P. Rock, and White R. Comb Leghorn Chickens. Our breeding stock is first-class, and judiciously mated. Send for price list. 58db

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ONE-PIECE SECTIONS, $2.50 PER 1000.

SAMPLE FREE.
M. A. LOHR,
5d **Vermontville, Eaton Co., Mich.**

WANTED.—Bee-books, supplies, bees, combs, extractor, incubator. Will give cash. Eggs at $1.00 per 13, of L. Brahmas, Rose C., B. and S. C. W. Leg., P. Rocks, W. P. Rocks, $2.00 per 13. Male pup, ½ Shepherd, ½ Skye Terrier. Strawberry and Red-raspberry plants. W. W. KULP, Pottstown, Pa.

HONEY COLUMN.

CITY MARKETS.

KANSAS CITY.—*Honey.*—We quote choice white 1-lb. sections, 18@20c; dark, 1-lb., 16@18. White, 2-lb., 18c; dark, 16. Extracted, in cans, white, 9c; in bbls., 8c. California, 2-lb. sections, 18c; extracted, in 60-lb. cases, 8@9c. *Beeswax*, 18@20c. Supply of honey is larger than the demand, and sales are slow; the trouble seems to be, that prices are too high.
CLEMONS, CLOON & CO.,
Feb. 24. Kansas City, Mo.

CINCINNATI.—*Honey.*—There is a good demand for extracted honey, which brings 4@9c on arrival. Comb honey brings 16@20c in the jobbing way. Demand for the latter is slow, while supply is larger than usual at this time of year. *Beeswax.*—There is a good home demand, which brings 20@22c for good to choice yellow on arrival.
CHAS. F. MUTH & SON,
Feb. 20. Cincinnati, O.

NEW YORK.—*Honey.*—The honey market continues dull. We quote: Fancy white 1-lb. sections, 15@18c; 2-lbs., 13@15; buckwheat, 2-lb. sections, 10@11; 1-lb., 11@12. Extracted, white, 8@9; dark, 5½@6. *Beeswax.*—22@23.
MCCAUL & HILDRETH BROS.,
Feb. 21. 28 & 30 West Broadway, N. Y.

CHICAGO.—*Honey.*—Working off more freely at prices that are ranging from 16@18c for best grades, while the less desirable are slow at a lower range of prices. Extracted steady, but demand limited. *Beeswax.*—22@25c.
R. A. BURNETT,
Feb. 21. 161 So. Water St., Chicago, Ill.

ALBANY.—*Honey.*—Market is quiet. Buckwheat comb honey clearing out, and market rather overstocked with medium grades of clover and mixed honey, which may have to be sold at buckwheat prices, as the season for *luxury* honey is nearly over. Some more movement in extracted. Consignments solicited.
H. R. WRIGHT,
Feb. 21. 328 Broadway, Albany, N. Y.

CLEVELAND.—*Honey.*—Market is very dull. We are offering the best white-comb 1-lb. sections at 16c, with but very few sales. Demand is very dull.
A. C. KENDEL,
Feb. 21. Cleveland, Ohio.

BOSTON.—*Honey.*—We quote: 1-lb. sections, white, 16@17; 2-lbs., 14@16. *Beeswax.*—25c. Sales slow.
BLAKE & RIPLEY,
Feb. 24. 57 Chatham St., Boston, Mass.

NEW YORK.—*Honey.*—We have nothing new to report in the honey-market; limited demand, and a fair stock.
F. G. STROHMEYER & CO.,
Feb. 21. 122 Water St., N. Y.

ST. LOUIS.—*Honey.*—Extracted and strained honey scarce and in demand, at from 6½@7½ in barrels. Comb, 18@20c. *Beeswax.*—Prime, 21½c.
Feb. 24. D. G. TUTT & CO.,
206 N. Commercial St., St. Louis, Mo.

DETROIT.—*Honey.*—Best white comb honey, in 1-lb. sections, 17@19c; extracted, 9½@10. Market weaker, with only a fair supply. *Beeswax.*—22@23c.
Bell Branch, Mich., Feb. 22. M. H. HUNT.

You who are in need of a few cans of choice honey, 65 lbs. to the can, 8c per lb., address
J. B. MURRAY, Ada, Hardin Co., Ohio.

ALSIKE.

I sold more alsike seed last season than all the supply-dealers combined. Write to headquarters for prices. No poor seed in stock. Also 25 large pkts. of garden-seed, fresh and No. 1 in all respects, for 65 cts., *postpaid.* Write for further particulars, to C. M. GOODSPEED, Box 27, Thorn Hill, N. Y. Be sure and name Box 27 in answering this adv't.

FOUNDATION, 10-lb. lots or more, 35 cts. per lb.
JAS. McNEIL, Hudson, N. Y.

DO YOU KNOW

that I am headquarters for **Queen Mothers,** and full Colonies? 12 years in originating a superior strain of Italian Bees. If you mean business, I will cheerfully respond. Price list free.
F. BOOMHOWER,
Gallupville, N. Y.

C. M. DIXON, PARRISH, FRANKLIN CO., ILL.
MANUFACTURER OF AND DEALER IN
APIARIAN SUPPLIES,
AND BREEDER OF
FANCY POULTRY.
Send for Price List.

WE have sold and made tons of FOUNDATION. Not one dissatisfied customer. 36 cts. a lb. New Jersey Hive our specialty. $2.50 buys one.
M. B. HIVE CO., W. Phila., Pa.

ITALIAN BEES AND QUEENS.

1 untested queen $1.00; three for $2.00. Bees by the pound and nucleus. Send for price list.
H. G. FRAME,
5-15-d **North Manchester, Ind.**

MINNESOTA ✻ ✻ ✻ ✻ AHEAD!

We are selling 100 all-wood L. brood-frames, for $1.00. Langstroth hives with supers, for 55 cents. When sending for circular, make out a bill of what you will want for the season, and we will quote prices to suit the times.
5-6d WM. H. BRIGHT, Mazeppa, Minn.

Maple Sugar and The Sugar-Bush

THIS IS A NEW BOOK BY
PROF. A. J. COOK,
AUTHOR OF THE
BEE-KEEPER'S GUIDE, INJURIOUS INSECTS OF MICHIGAN, ETC.

The name of the author is enough of itself to recommend any book to almost any people; but this one on Maple Sugar is written in Prof. Cook's happiest style. It is

PROFUSELY ✣ ILLUSTRATED,

And all the difficult points in regard to making the very best quality of Maple Syrup and Maple Sugar are very fully explained. All recent inventions in apparatus, and methods of making this delicious product of the farm, are fully described.

PRICE: 35 Cts.; By Mail, 38 Cts.
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Cash for Beeswax!

Will pay 20c per lb. cash, or 23c in trade for any quantity of good, fair, average beeswax, delivered at our R. R. station. The same will be sold to those who wish to purchase, at 25c per lb., or 28c for *best selected wax.*

Unless you put your name *on the box*, and notify us by mail of amount sent, I can not hold myself responsible for mistakes. It will not pay as a general thing to send wax by *express.*
A. I. ROOT, Medina, Ohio.

GLEANINGS
IN
BEE CULTURE.
DEVOTED·TO·BEES·HONEY·&·HOME·INTERESTS.
F.A. Whiting

Vol. XVI. **MAR. 1, 1888.** **No. 5.**

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ARE BEES EVER INJURED BY HAVING THE HIVES COVERED WITH SNOW?

GEO. GRIMM REPLIES A LITTLE MORE AT LENGTH IN REGARD TO THE MATTER.

FRIEND ROOT:—In reply to your request, I will say that I can not always stop to give my reasons for the answers I send. Usually they are prompted by my individual experience, and may differ widely from others who have managed in a different manner and under different surroundings. My answer to question No. 34 was not "yes" by mistake. I meant yes, and meant thereby what Dadant & Son in their answer more fully expressed. The body of the hive may be covered, but the entrance should be kept open at any event. True, I remember that, in the winter of 1880 (I think it was Vennor's eleven-foot-snow winter), I had one hive buried for a month from two to three feet under the snow, and it fared no worse than the others that I had left outdoors. It lived till nearly spring, then died. I believe the less snow, rain, or moisture of any kind, about a hive, the better. And the further you can keep your bees away from it, the better. For this reason I keep my bees in the cellar. I do not think the bees would exactly *smother* were the entrance to be closed for a time with snow; but I do think that such a condition of affairs would not conduce to the proper atmosphere for the bees. Cold alone will not hurt a good colony of bees, nor injure the stores; but cold *and dampness* will. I have tried outdoor wintering to my heart's content, and have paid for my experience richly; and because I can not secure the condition of affairs necessary to reasonable success, I have abandoned it.

By the way, I seem to differ from a good many in regard to the relative cost and profit of comb and extracted honey. When I get time I will give you a description of my manner of raising comb honey, and perhaps it will show the reason of the difference.

GEORGE GRIMM.

Jefferson, Wis., February 21, 1888.

Thank you, friend G. We value your replies, because they *are* many times different from even those given by the veterans, and because we know they are prompted by considerable practical experience; but it seems to me as though circumstances must be quite different in Wisconsin from what they are in Ohio. With us, when the snow banks up against the hive there is always a passage left for more or less air to get around the sides of the hive; and our mild days are so frequent here that the heat of the hive, or something else, invariably enlarges this crevice between the snow and the hive. In fact, I have seen bees crawl along between the front of the hive and the snow, until they reached the surface; that is, when we have snow so high as to cover the entrance. Some have spoken of melting snow forming a sort of slush of snow and water that runs into and clogs the entrance when we have a sudden thaw. As our hives are always set on four bricks, and the ground not only underdrained, but arranged so that water can run off quickly, we never have any snow-water high enough up to run into or close up the entrances. In view of this, I have always said I would not have the snow swept away from the entrances, even if somebody would do it for nothing. Very likely the difference in locality may have much to do with the difference of opinion.

FOUNDATION FOR SURPLUS BOXES.

FRIEND ELWOOD GIVES US SOME NEW FACTS IN REGARD TO FLAT-BOTTOM FOUNDATION.

IN looking over the last few numbers of GLEANINGS I have been particularly interested in the discussion of the relative merits of flat-bottom and natural-base foundation, and the proper weight of the same for surplus honey. To have flat-bottom foundation pronounced impractical, as a writer in GLEANINGS has lately asserted, sounds strangely to some of us who have used it by the ton, without making a similar discovery. We have been equally surprised to have some of your correspondents recommend a foundation as heavy as eight feet to the pound, if the extra weight be in the side walls. A fish-bone will quite often be found at the base of these heavy ridges of wax; but no matter how well thinned by the bees, the wax is there in objectionable quantity, and beeswax is not flaky comb which separates in the mouth, while chewing the tenacious wax unites it into a compact mass. Very many complaints are made by dealers and consumers as to the great quantity of wax they find in some lots of comb honey. I venture the assertion, that nothing else has done so much to lessen the demand and the price for comb honey as the use of too heavy foundation. I think, had producers been as careful in this respect as they ought, the market would now take double the quantity, and at a much higher price.

The question should be, not how much, but how little beeswax can we use in surplus foundation. How light can we make it, and have it strong enough and yet retain sufficient side wall to make it acceptable to the bees? In answering this question, the merits of the flat bottom will come in, for it is plain that a foundation of this make is much stronger than one with the natural base. The septum of the first is a plain straight wax sheet that remains perfect until weighted to its breaking capacity. The septum of the natural base is a crimpled, crooked wax sheet that fails when only enough weight is put upon it to commence the straightening-out process, while the same height of side wall strengthens the flat bottom more than it does the natural base. I am told, that, so great is the strength of flat-bottom foundation, no wires are needed with low brood-chambers, such as Heddon's. The side walls must be thin, but of good height, or the bees may too easily remove them if there is any poor honey weather before they are drawn out. I have seen samples of flat-bottom foundation from the West, with side walls so thin and low that a few ambitious bees could soon pocket them, leaving a plain wax sheet, after which the bees would be more apt to gnaw it than to build it out. This is the kind that one or more of your correspondents have tried and found wanting. Mr. Cowan's experience has been different, for he says, in his Guide Book, page 58, that for surplus honey "there if nothing to equal the thin flat-bottom foundation." It is claimed that a flat-bottom foundation as light as 14 ft. to the pound is strong enough, and yet retains sufficient side wall to make it acceptable to the bees. It is also claimed that it is not practicable to make or use a natural-base foundation as light as this.

But surplus foundation must possess other good qualities than thin base and high thin side walls. It must be made of the finest selected wax. It is a mistake to suppose that discolored, hard, or burnt wax can be clarified so as to become fit to put into comb honey. It should be made with uniform but not excessive pressure. Much foundation is injured by too much pressure in making. The sheets are cast too thin at one end and too thick at the other, and in passing through the mill but one place in the sheet has the proper pressure.

In reading the objections to the Given foundation I observe that none of your correspondents, although some of them are foundation-makers, have yet learned the art of dipping sheets of uniform thickness throughout. The best foundation-makers with us cast their sheets of the same thickness in all parts and of any desired weight up to 14 feet to the pound, and in no other way can foundation be made of the highest degree of excellence.

Before condemning any kind of foundation, many comparative tests by disinterested parties ought to be made, noting carefully the characteristics of each kind, with the age of the foundation, the maker's name, and the mill upon which it is made. I am not interested in the manufacture or sale of any kind of foundation, but I am interested in the honey market, and I think we can improve that very much by making it certain that the consumer has no cause to complain of hard unpalatable centers.

P. H. ELWOOD.

Starkville, N. Y., Feb. 20, 1888.

Friend E., although we have not arrived at the same conclusion you have in this matter, we are right with you, heart and hand, in regard to your closing sentence. We want the truth to come out, let it strike where it may; and you have given us some valuable points in regard to this matter of foundation for surplus honey that have never before, to my knowledge, been brought out. The bee-keeper or bee-keepers who use foundation by the ton ought to know what is wanted, better than those of us who use so little of it that it is of no very great moment whether it is exactly what it ought to be or not.

SMALL-FRUIT RAISING IN CONNECTION WITH BEE-KEEPING, ETC.

ALSO SOMETHING ABOUT CUTTING OUT QUEEN-CELLS TO PREVENT SWARMING.

ON page 728 of GLEANINGS for 1887 I find these words from Dr. Miller: "Perhaps I may arouse Bro. G. M. Doolittle, by saying that I think he has made one of the worst combinations possible, in combining bee-keeping with small-fruit raising."

Well, Dr. M., so should I think so, if my small-fruit raising were the same as you interpret it to be. But all the business of this kind I have ever done, except for family use, was along the line of *selling plants*. As this part of the small-fruit business comes in early spring, so far as digging and shipping plants is concerned, it does not interfere in the least with the bees; for at that time they are in the cellar, or require little if any attention when outdoors. Then, again, the rooting and caring for the plants comes mainly in August, after the hurry with the bees is over, so that it can be done about as well as not, by the man who wishes to economize all of his time. This plant-business, as above, can be made quite a profitable item, as will be seen, when I say that, with very little effort, I did a business on this alone amounting to $150 a year. When I gave up the subscription-business I dropped plant-selling also, being obliged to do less work along these lines after the care of my father's estate fell upon me. However, if I were to choose any business to go with the bee-business, it would certainly be farming, for the reason that this gives steady employment nearly all the year; and at times when more is to be done along both lines than the bee-keeper could attend to, a man capable of doing farmwork could be hired very easily; while hired help along other lines, which would be at all satisfactory, is something not easily obtained.

On page 822 of the same volume of GLEANINGS, Mr. T. D. Waller tells us of the excessive swarming of bees, where he took away the queen, and says, "They acted so persistent about it that I think they might swarm if they had no queen;" whereupon the editor says, "We are to understand, from what you say, that your bees swarmed without the queen." I do not understand it so, only that they *might* do so. Well, they might, for I once had a swarm come out without a queen, but in this case there were several queens out with other swarms, and I very much doubt if a queenless colony could be induced to swarm under any other circumstances. But this was not what I particularly wanted to notice in Mr. Waller's article. He says, in answer to the question, "Why did you not cut out the queen-cells?" "I have done that, and then I have had them swarm out till there was not a quart of bees left." The trouble here was, that the queen-cells were not cut at the right time, for the cutting of queen-cells can be so done as to make a success of it, or a complete failure. By the old plan, of waiting only six days after swarming, or when a queen was taken away, it was nearly always a failure; for in this case the bees had plenty of larvæ that were still convertible into queens, and the question of swarming was delayed only a few days; and as this delay gave them more strength, of course they would swarm all the more. Had he waited eight days, in case of a colony having swarmed, or ten days where the queen had been taken away, before cutting the cells, he would have had a perfect thing of it; for in that case the bees could not possibly have reared a queen to go with a swarm.

Friend Root, I must object a little to the loose way you speak of the teachings of the Bible, on page 19, Jan. 1. The Bible either means what it teaches or else it is a book not worthy of our notice. It is either true or else it is the worst book in the world. There can be no half-way ground here. When it says, "Thus saith the Lord," who is to gainsay it? If "baptism" means to be baptized with the Holy Spirit, then no one has any right to be baptized with water; for Christ says, "Not one jot or tittle" of his word shall fail; therefore we should be very careful how we interpret his sayings, and what latitude we give to our views. The trouble is, that, instead of coming to the Bible, we try to bring the Bible to us—down where it will meet our views and notions regarding nearly all the events and wants of our life. One day, a few years ago, when I was very busy with the subscription-business, a stranger called, and it seemed that I could hardly spare a minute from my work; but I soon saw that in him I had no ordinary individual, so I dropped all work, and in the brief time he stayed I learned many things. Among them this: He said that there was no reason for our going through the world not knowing whether we are right or not; for, said he, we have the gospel *try-square*, and by it we can tell just where we are. If we have any doubts whether right or wrong, lay on the square; if our life squares with it, all right; if not, all wrong. Lay on the try-square, friend Root, and see if your teachings on page 19 square with it. See Matt. 5:19.

Borodino, N. Y., Feb. 17, 1888. G. M. DOOLITTLE.

Thanks for your explanation in regard to the small-fruit business, friend D. At our farmers' institute, we were addressed by Mr. Longnecker, of Dayton, O., and he gave us a most valuable talk in regard to small-fruit raising, and especially in the matter of sending plants by mail and express. After the session was over, I questioned a good deal about the amount of fruit he sold. He did not answer very satisfactorily, and pretty soon he turned around and spoke something as follows: "Mr. Root, I suppose I shall have to confess to you that I don't raise more strawberries than my family need for their own use, although I have two acres or more devoted entirely to strawberries." I opened my mouth in astonishment, and he went on: "The fact is, I do such a large business in raising and selling plants that I have abandoned fruit entirely." I found, upon further questioning, that he pinches off the fruit-blossoms in order to throw the whole force of the plant into runners. He has a perfected system for taking up the plants for packing and shipping, and has trained hands for the business. In this way he does it better, and at much less expense, than when he sells both plants and fruit. I confess, the business as he described it seemed very attractive to me. Take such a strong plant as the Jessie, for instance, and push it for runners and little plants, and see how many you can get from one in a season. In a light soil, the number of strong healthy plants that can be produced is almost incredible.—May be I am a little loose, friend D.; but I have seen Christians behave in such a very unchristianlike manner in regard to this matter of baptism, that I can not but feel that there is such a thing as laying too much stress on *one* of the points of Bible teaching, and ignoring others. Paul says, II. Cor. 3:6, "The letter killeth, but the spirit giveth life." I like your figure of the try-square; and I believe with you, that the Bible, rightly used, will lead us unerringly.

THE GRAND RAPIDS LETTUCE.

SOME FURTHER PARTICULARS IN REGARD TO IT FROM FRIEND TERRELL.

AFTER reading the letter published on page 145, I immediately wrote to friend T., asking him how much seed he had to spare, and what he would take for it. Below is his reply:

Friend Root:—My greenhouse is full of this lettuce. Some of it is almost ready for market. Plants set December 29 are 9 inches high, and not a spot or a louse on them up to this date. I use no tobacco smoke in my greenhouse. One man here has five greenhouses, in two of which he raises lettuce, and he has hardly a healthy plant in them. He raises the Black-seeded Simpson. A man at Elyria has a large house, half of it in lettuce, and he has made almost a failure of it. He raises Black-seeded Simpson too. My lettuce is a wonder to them all.

Drop me a card, saying what day you will come, and I will meet you, and show you all of the greenhouses, and try to make the day enjoyable to you, and perhaps profitable. O. J. TERRELL.

No. Ridgeville, O., Feb. 22, 1888.

You perhaps know how hard it was for me to forego the kind invitation; but business is crowding so just now that I don't feel as if it would be right for me to desert my post for a single day. But I made him an offer for the seed, to which he replies as follows:

Mr. Root:—I have cleaned up my seed, and find that it weighs 13 oz. I am sorry you did not conclude to come. I am shipping lettuce to Cleveland now. It was set from the 29th of Dec. to the 10th of Jan. It is fully one foot high. Chandler & Rudd have my crop, at 30 cts. per lb. O. J. TERRELL.

No. Ridgeville, O., Feb. 22, 1888.

I secured the 13 oz. of seed; and if any of the friends want it in larger quantities than the 5 and 25 cent packets which I have been selling, I can furnish it, so long as the 13 oz. last, at the following prices: $\frac{1}{16}$ oz., 25 cts.; $\frac{1}{8}$ oz., 40 cts.; $\frac{1}{4}$ oz., 75 cts.; $\frac{1}{2}$ oz., $1.25.

HONEY STATISTICS.

REPORTS FROM DIFFERENT LOCALITIES.

IN response to the foot-note on page 134, we have received the following postals in regard to the prospects for the honey-crop next season, how the bees have wintered, etc. Taken as a whole they are very encouraging, and certainly ought to make the bee-keeper look up once more. The reports received thus far are as follows:

HONEY FROM ORANGE-BLOSSOMS.

I notice you want reports of the first new honey. My bees are just booming on orange-blossoms. I notice somebody reports white clover in bloom in New Orleans. We don't have any clover here, but I could extract quite a little new orange honey now if I wanted to. I have had drones hatching for a week. We have good prospects for a good honey year here. This spring is extra early. Bees began to bring in honey and pollen about the 10th of January. O. E. HEACOCK.

Emporia, Fla., Feb. 25, 1888.

REPORT FOR WESTERN MARYLAND.

So far as I can learn, bees have wintered reasonably well in Western Maryland. C. F. SWEET.

Swanton, Md., Feb. 27, 1888.

NEW HONEY AND SWARMS.

I extracted about three gallons this season, Febuary 18th, from willow bloom. I also hived 2 young swarms of bees, one Feb. 19th, and one on the 17th. Our fields here are all getting white with clover-bloom. E. STAHL.

Kenner, La., Feb. 23, 1888.

NONE LOST YET.

The weather is cold; ice still on the streams. The bees had their first general fly to-day. They appear to be in good condition. I have lost none so far.

Shaw's Landing, Pa., Feb. 23, 1888. J. M. BEATTY.

EXTRACTING IN FEBRUARY.

Bees are doing well. I extracted my first new honey on the 17th of February. Who can beat that? I will send you a sample as soon as I get a vial suitable. J. W. WINDER.

New Orleans, La., Feb. 21, 1888.

OVER HALF THE BEES DEAD.

Dear Sir:—I am satisfied that over half the bees in this county died this winter. I think I will order a queen this spring. My bees brought in pollen to-day, Feb. 12, which they gathered from alder.

Silver Hill, Ark. W. R. DAVIS.

PROSPECTS GOOD.

My bees wintered well, and the prospects for a honey crop are good, especially for white clover. The majority of bee-keepers are about 40 years behind the times here. WM. O. HEIVLY.

Raymore, Mo., Feb. 24, 1888.

PUTTING ON SECTIONS.

We have had a mild winter in this portion of country. Even two-frame nuclei have wintered successfully. Clover and other flowers are blooming. We have put on sections, and expect to have nice section honey as soon as the Northern bee-keepers take their bees from cellars. N. ALLEMAN & SON.

Centreville, La., Feb. 20, 1888.

SEASON EARLY.

My bees commenced carrying in pollen on the 30th of January, and have been very busy since. They wintered very well. Two stands starved out before I knew it. Some stands have young bees out. The season is early. S. G. WOOD.

Birmingham, Ala., Feb., 23, 1888.

THE PROSPECT IN TEXAS FOR 1888.

The bees have wintered nicely in this section, and have commenced rearing drones for swarming. I look for the first swarm in 30 days. The prospect for a large crop of honey here is better than for 5 years past. Our surplus is gathered from the first of April to the first of June. D. M. EDWARDS.

Uvalde, Tex., Feb. 21, 1888.

BEAUTIFUL WEATHER.

We have had beautiful weather here for nearly a week. The bees have been out every day, and are rearing brood to a greater extent than they did in March last year. I think nearly three-fourths of the bees in Washington County are kept in box hives; but every year sees more and more of the Simplicity and chaff hives coming into use.

England, Pa., Feb. 23, 1888. S. B. POST.

A GOOD OUTLOOK FOR FLORIDA.

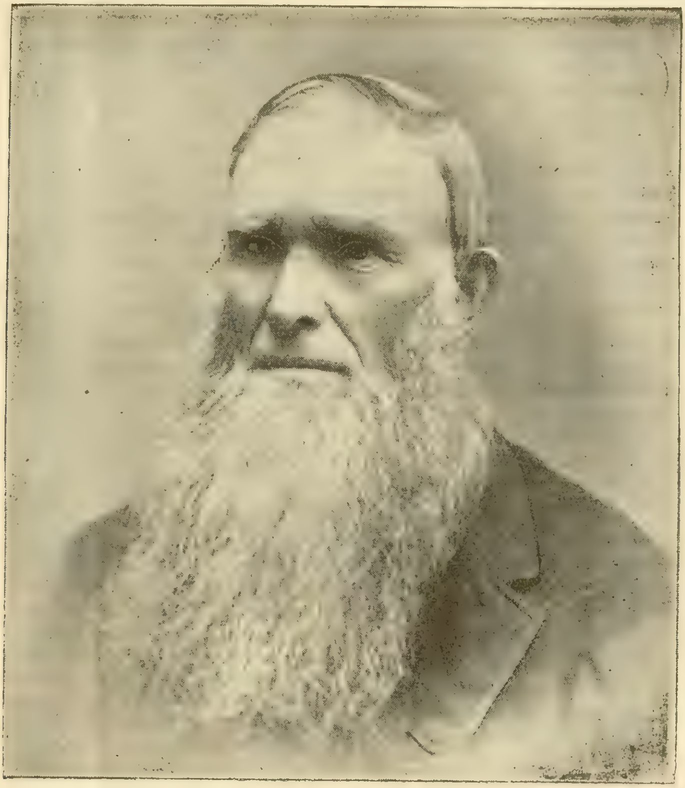
Bees are breeding rapidly, though but little honey is coming in. More bees are in the hives generally than usual at this time of year, if neighbors' reports are correct. I do not think the bees have as much honey as usual so far this year, but the orange-bloom is now beginning to open, and is remarkably heavy. Even my nursery stock is preparing to bloom freely. So far as I can now judge, there is every prospect of a good honey season for 1888 in this section. W. S. HART.

Hawks Park, Fla,

EDWIN FRANCE.

THE MAN WHO HAS 500 COLONIES, AND HAS PRODUCED AS HIGH AS 21 TONS OF EXTRACTED HONEY, IN 28 DAYS, AND NOT IN CALIFORNIA EITHER.

WE take great pleasure in presenting to our readers a picture and autobiographical sketch of our friend Edwin France, of Platteville, Wis. We consider him well worthy of this distinction. He is one of our most extensive and successful honey-producers. He is a plain, practical writer, and we believe he never puts any thing before the public except such as he knows to be well established from long experience. At our request he prepared a sketch of his own life, as appears below:



EDWIN FRANCE.

Friend Root:—In reply to your letter of Jan. 23, I will give you a brief sketch of my life. I was born in Herkimer Co., N. Y., Feb. 4, 1824. My father was a furnaceman by trade, molding and melting iron. He had a large family to support, and never got much property ahead. I was the second child. An older brother died young, leaving me the eldest of the children. When I was eight years old my parents sent me to live with my mother's brother, who was a farmer and a Methodist preacher. He preached every Sunday—no regular appointment by the conference, but he went where he chose. He preached in the county poorhouse every two or four weeks for over 40 years. He never had any pay for preaching, from those to whom he preached, but always said that God would pay him for his work. Perhaps he did. He had a good property, and money out on interest. I lived with him 8½ years.

The spring after I was 16 years old my father had me come home, and put me at the furnace to learn the trade. I worked at the business four years, pretty steady. Then my father bought forty acres of timber land which was five miles from town. We built a log house upon the land, and moved the family into it. Father and I worked summers on the place, clearing up the land and raising farm crops. Winters we worked at the furnace. My father died when I was 24, and I then became the main support of the family, consisting of mother and six children. I did the best I could, and made out to get plenty to eat. I gave up the furnace business, and worked a part of the time in making salt-barrels summers, and cutting sawlogs in the winter.

About this time I obtained a few hives of bees, and kept them on that little place in the woods. I lived there until I was 32, when I got the "western fever" and came here to find a home. I traveled about in Illinois and Wisconsin, but finally settled in Humboldt Co., Iowa, leaving my mother and the other children on the place in New York, in care of my mother's brother (not the preacher, but another brother). He was a single man, older than mother, and was well off and able to care for the family. So, then, at the age of 32 I took to myself a wife from the settlement that I left in New York, and settled in Iowa on a 200-acre prairie farm. Here I began life anew, and here again I obtained a few bees. I lived on the place in Iowa six years, farming summers and trapping winters, until the war broke out. At first there was no price for farm produce. Accordingly, wife and I with our little boy, five years old, came to Platteville, on a visit to some of my wife's relations. We intended to return as soon as times got a little better; but the war kept along, and we did not go back. I wanted something to do. I saw an advertisement in a paper, "Agents wanted, to sell patent bee-hives." I wrote to the man, and was soon the owner of the patent for the county I lived in. I made the hives myself. At that time nearly every farmer had a few bees, and the business paid very well. I soon bought two more counties. In my trades I got some bees, and this is the way I got into the bee-business. I increased the bees until the winter of 1871, when I went into the winter with 123 stands, and came out in the spring with 25, and the next spring with 14 colonies. I then made up my mind that my hive was too small, and accordingly made larger ones and learned more about bees. Since then I have had better success.

We use the Metcalf hive, with standing frames, movable side, double-walled, chaff-packed. We have about 100 colonies in Langstroth frames. For the extractor, I like the Metcalf hive best; but for comb honey, the L. frame is the best. In my opinion there is not very much difference in favor of the Italian bee over the brown, or German bee. Either, if handled right in a good season, is good enough for me. I think of trying the Carniolans next season. Myself and son have now 500 colonies of bees; 6 apiaries—one at home, and five out from home—none out on shares. We hire help during the honey season; all board at my house. We do all the work ourselves, with the help we take with us. In good average seasons we get 100 pounds of extracted honey per colony, spring count. We winter all outdoors on the summer stands.

We sold our Iowa land and bought 11 acres here inside of the limits of the city of Platteville, on which we have raised largely of garden truck and berries. EDWIN FRANCE.

Platteville, Wis., Jan. 29, 1888.

After receiving the above we wrote friend France, asking him to furnish us a record of his yearly yields, the number of colonies, the number of out-apiaries, his winter losses, etc., for a few years back. This he has done, and we append the figures below. These are facts, and the reader can see for himself what one of our most extensive apiarists has done in an average locality.

FRIEND FRANCE'S YEARLY YIELD PER COLONY.

In 1880 we had 124 colonies in the spring. We took 6000 lbs. of extracted honey, almost all basswood; no clover that year. The average was about 48½ lbs., spring count. We went into winter quarters with 178 colonies. The winter of 1880 was a hard one; besides, we had extracted too closely. As a consequence, we lost a great many bees. We saved only 75, all told, many of them weak.

The year 1881 proved to be a very poor one for honey. From the 75 colonies we obtained 2000 lbs. of extracted honey, making the average 26⅔ lbs. We went into winter quarters with 157 colonies, all outdoors, on summer stands. We made sure to leave the bees plenty of honey to winter on this time. The winter of 1881 was a mild one. We lost 42 out of the 157. Two of the last were queenless. In the spring of 1882 we had 155 colonies distributed in three out-apiaries, and one apiary at home. We secured from the 155 colonies, 13,000 lbs. of extracted honey, making an average of about 83 lbs. We went into winter with 295 colonies, and lost very few during the winter. But the bees deserted badly in the spring. We managed, however, to get into working order with 211 colonies. In the spring of 1883 we had four out-apiaries and one at home. We took, during the following season, 22,037 lbs. of extracted honey from the 211 colonies, an average of 104½ lbs. per colony, spring count. We did not record the number of colonies in the fall of 1883.

In the spring of 1884 we had 290 colonies in six apiaries, from which we took 31,487 lbs. of honey, of which 206 lbs. was comb—an average of very nearly 109 lbs. spring count. We went into winter quarters with 455 colonies.

In the spring of 1885 we had 320 colonies in six yards. From them we extracted 36,193 lbs. of honey, an average of 113 lbs. per colony, spring count. We went into winter quarters with 516 colonies.

In the spring of 1886, after selling 58 colonies we had 395, of which the home yard had 61, the out-apiaries respectively 72, 60, 72, 80, and 50. From these we extracted 42,489 lbs. of honey, an average, very nearly, of 108 lbs. per colony. We went into winter with 507 colonies.

In the spring of 1887 we had 410 colonies, from which we took 5000 lbs. of honey—an average of 12 lbs. per colony. We went into winter with 514 colonies—home yard 74, out-apiaries 105, 70, 91, 86, 88.

All of the bees were in good condition for winter. But this is a hard winter so far. If we get good weather through March and April I have no fears for the bees. I have given you figures back to 1880. Since that time I have been down to 75 colonies.

Platteville, Wis., Feb. 9, 1888. E. FRANCE.

Friend F., the above report is very valuable, and I think it extraordinarily large for the number of colonies you handled. I doubt if we have a record this side of California, for as many tons of honey and for as many pounds per colony, for as many colonies, owned by any one man. I think I have heard it estimated, that 50 lbs. of extracted honey per colony, where the number runs up into the hundreds, may be called a pretty fair yield.

HOW MUCH LABOR IS REQUIRED TO MANAGE A SERIES OF OUT-APIARIES?

FRIEND FRANCE RECONSIDERS QUESTION NUMBER 20, ON OUT-APIARIES.

IN question No. 20, in GLEANINGS for Dec. 1, I was greatly surprised at some of the answers there given—especially the answer by Geo. Grimm. He puts the number of apiaries at ten, each with 100 colonies—in all, 1000 colonies, to be managed by one man with two assistants. Now, I am not going to say he can not do it; but I can not do it here in my location, and I don't believe any other man with two assistants can work 1000 colonies in my location. All the honey we get here comes with a rush. All we get is taken inside of four weeks, and three-fourths of that in two weeks. In 1886 we worked at extracting honey 28 days, and got 42,489 lbs. In 1885 we extracted 31 days and obtained 30,079 pounds; in 1884 we extracted 35 days and got 31,482 lbs.; in 1882 we worked extracting 31 days, and got 22,037 lbs. All our hired work with the bees this year, 1887, was all inside of a week. But we had only a very little honey to extract. There is myself and son; and for the last three years we have employed eight assistants for about two or three weeks each year; the rest of the time we have no help, and for about eight months of the year the bees don't require any work at all. For the years of 1882, 1883, and 1884, we hired from two to three assistants; but then we did not have as many bees as we have now, and we then worked them over once in ten days; but now we go over them once a week. There are three of our apiaries eight miles from home. We have to travel those eight miles and return, and while there work from eighty colonies in the spring to 100 colonies before we get through the extracting season. When we get fairly under way in extracting there are ten of us, and all live with me at my house. We carry our dinners with us. Our help is all boys from 12 to 18 years old. We have had two boys with us as old as 20 years for one season. We give our twelve-year-old boys from six to eight dollars a month. If we employ them after the first year, we give them about two dollars a month more each year as long as we hire them. Very few boys stay with us more than two years—some only one year. As soon as they are old enough to hire out on farms or learn trades they leave us, as our work is so short a job (from 28 to 35 days). So a part of our force each year consists of new recruits, and are young boys. Very likely we are not working to as good advantage as some others; but the way we are doing is what we have drifted into, and we don't know any better. Mr. Grimm doesn't say whether he would work his bees for extracted or comb honey, or work them to raise bees to sell. If to raise bees for market, perhaps he could manage 1000 colonies with two assistants. In that case it would not be necessary to see each yard more than once in ten days, and I think three men could work 100 colonies a day for that purpose. But I suppose the question had reference to raising honey. For my part I would give a big fee to learn how to work 1000 colonies of bees in ten yards, for either comb or extracted honey, the entire work to be done by three men.

At the North American Bee-Keepers' Convention at Chicago, Mr. D. A. Jones had an essay on establishing out-apiaries, which is published in the *A. B. J.*, also in GLEANINGS. I think Mr. Jones is one of our most practical men in the bee-business. In reading his essay I find he has seven apiaries, which I should conclude contained 100 colonies each, spring count. Now, about how many assistants has he? He says one man is required at each out-apiary during the season, for four to five months; there are seven men four or five months. Then, again, he says, speaking of the work this one man at the apiary has to do. He "never expects him to do all the work during the honey-flow," but gives him assistance in extracting. Again, he uses little boys and girls to carry the combs to and from the extractor; and two, a little larger and a little practiced, to do the uncapping and extracting; so we have at least four more at each yard, making five. Now, five times 7 is 35, at least a part of the time. Well, what is all the gist of this article? I don't want the idea to go out to the A B C class, or to those contemplating going into the bee-business, that one man and two assistants can manage ten yards of bees with 100 colonies each, and do all the work; for if they try it, it seems to me they will be sadly disappointed. E. FRANCE.

Platteville, Wis., Dec. 30, 1887.

Friend F., I too was a little surprised at friend Grimm's answer; but we shall have to take into consideration the fact that the Grimms are all tremendous workers. Even Katie took charge of an apiary, and extracted an amount of honey that would frighten almost any of our big stout veterans; and, coupled with great endurance, the Grimms seem to have unusual tact in shortening and simplifying labor. We should be very glad if our friend George would give us further particulars in regard to the way he and his father managed, if he can get time from his arduous law duties. In thinking the matter over, I fell to wondering if our friend Katie is a bee-keeper still. May be her brother will tell us, and perhaps we may have the good fortune to get some sort of communication from the lady herself.

A BIT OF BEE-KEEPING ROMANCE.

HOW A YOUNG PRACTITIONER BEGAN BEE-KEEPING, AND HOW HE SECURED HIS QUEEN.

IN the winter of 1879, your advertisement, "Friends, if you are interested in bees or honey," etc., caught my eye. I sent my name. GLEANINGS came. I saw, and was conquered. Its visits to my home have ever been pleasant and profitable. The first copy opened up to me a new field of thought and labor. I purchased a few colonies of bees, and began at once scientific bee-keeping, which was an entirely novel industry in this section. Old Texans, accustomed to obtaining small quantities of honey from rocks, trees, and boxes, when I invited them to look upon barrels of extracted honey, they shook their heads and said there was something wrong here. After a moment of silence they would ask, "What did you feed your bees with?" They were years in believing the truth. With all my ups and downs, successes and reverses, I can truly say that bee-keeping, though not my only business (being a practitioner of medicine), has not only given me much pleasant recreation, but we have kept our table well supplied with honey, and obtained many spare dollars besides.

There is a bit of romance connected with my bee-keeping experience. But for GLEANINGS I should not have been a bee-keeper; and being a bee-keeper, I visited the International Convention of 1882, in Cincinnati, where, perhaps, you remember me. Dr. L. E. Brown, of Eminence, Ky., Dr. Brown, of Georgia, and myself were on a committee of work. Miss Ada Bowen, of Covington, Ky., the auburn-haired niece of Dr. L. E. Brown, was introduced to me during the convention, and little did she dream, or myself either, for that matter, that she would become the queen of a bee-keeper, in the genial clime of Texas. But such was the fact. In about a year from that time we were married. It was a case of love at first sight. She has not only become a good bee-keeper, but a good house-keeper as well, and has made me one of the happiest of men, all due to bees. Friend R., bees have made me a fortune. Just tell this to the boys who advocate bee-keeping along with other business. It will give them a good pointer.

Here is another dollar inclosed, for which send us your clean-faced journal another year.

Our report for this season is about 50 lbs. per colony, which, indeed, is a poor yield. Drought caused an early cessation of the honey-flow. Last winter was dry. The outlook now is fine. We had an abundant rainfall in September, which brought up the honey-plants. We are having plenty of rain now. With good rains in April we shall have a fine yield.

The crops in this section, while not the best, were fairly good, and we have plenty to carry us safely and bountifully to the next. For these and all other blessings, we return our thanks to the Giver of all good. J. E. LAY.

Halletsville, Lavaca Co., Texas, Dec. 23, 1887.

Why, bless your heart, doctor, don't we remember you at that convention is 1882? I have wondered several times why we did not hear from you oftener since. I don't remember about the auburn-haired little woman, but I do remember how enthusiastic you were about the prospects in Texas over the horsemint honey; and I remember, too, feeling sorry to think of the heavy expense it must have caused you to come all the way from Texas to attend that convention. I have wondered several times whether you were really paid for your pains and trouble; but I shall never worry about it any more. Why, my dear sir, it may not have been a bad investment had you traveled clear around the world—yes, four or five times over. Ask the auburn-haired wife what she thinks about it. "Man shall not live by bread alone." Now, friend L., let us hear from you oftener. Tell us about the bees, and tell us what your wife says about our recent articles on bee-keepers' wives, etc.

REMEMBER THE POOR.

A SENSIBLE REMINDER FROM MRS. AXTELL.

As the cold of winter is again upon us, and we are comfortably housed from the inclemency of the weather, let us look around us and see if there are not some who have not the comforts of life. Do not let us be contented by just giving them employment, or helping them to get employment. Often we can suggest to them ways by which they can better provide for their wants, or how to take better care of what they have.

A family came under our observation not long since, of actual suffering from cold; although they had a good plastered house and plenty of fuel, their bed-clothes were small. Being poor, they thought to economize by making short and narrow quilts. The father came in our house one severe cold morning, shaking as if he had the ague. He said he had nearly frozen the night before, although he had made several fires in their small stove. We began to inquire into the cause, and found they had a sick child that must be kept covered, while the father, with his clothes on, tried to keep warm at the back side of the bed against the north wall, with scant cover or sometimes no cover at all.

Next day, as he was our hired man, I looked up some pieces of quilts and lounge tick, and sewed one to one side of each quilt. These quilts could then be put crosswise of the bed. The pieces I sewed on were long enough to tuck a foot or more under the straw tick at the foot of the bed; then with an extra small thick quilt thrown over the foot of the bed, the clothing was sufficient. Before this was done I had more straw put into the straw bed, as they had only straw to sleep upon. Then I made a long bolster and filled it with straw, reaching from the head to the foot of the bed, and pulled the bed out a little and threw the bolster back of the bed, which stood against the north wall of the house.

The father did not know of this until he went to retire for the night. The next morning, when he came in to do chores, he seemed very thankful. He said he had not slept so comfortable and warm for a long time. The children's bed was also looked after and made more comfortable.

Not every family would allow one to take so much liberty as the above; but when we err we had better err on the side of doing too much for the poor rather than too little. Some have said, "You will hurt their feelings by doing so and so;" but I find if we help the poor in the right spirit they will love us all the more. If each reader of GLEANINGS will find some poor family to personally interest themselves in, how much good we shall do! Jesus says, "The poor ye have with you always; and whensoever ye will, ye may do them good."

JAPANESE BUCKWHEAT.

In regard to the 50 cts. worth of Japanese buckwheat, Mr. Axtell thought it did well considering the very dry year. It grew taller than the other, and seemed of ranker growth every way. He happened to sow it near a hedge, and not more than two-thirds of it came up; but from the 50 cts. worth he got 3 pecks by measure. He says he was more than pleased with it, and he believes it will do better in this climate than any other buckwheat he ever sowed, and he has had an experience of over 25 years. The bees in our home apiary, where we had buckwheat, gathered enough honey to winter upon; but in our timber apiary, 4 miles away, where was no buckwheat, we had to feed some. Our other buckwheat yielded 8 bushels per acre; but if it had done as well as the Japanese, it would have amounted to 24 bushels per acre.

A BEE-KEEPER'S SONG CALLED FOR.

I wish some one could compose a good piece on bee-keeping that could be set to music, to be played on an organ or piano—not a comic piece, but instructive and useful—one we could use in our homes. I should like to play it for my company once in a while. Such a piece would be nice sung if played at our bee-conventions. I don't know but in some of our back numbers there are a few pieces that could be set to music, but we have disposed of our bee-journals, so we have none, or but few to refer to. Perhaps Rev. Mr. Clarke, of Canada, or J. P. Israel, of California, could give us some such poetry; Dr. C. C. Miller, with tune also. A bee-book of songs would not be out of place, with notes to sing the same.

REPORT OF 1887.

Although this has been the poorest year for bees since we kept bees, yet we have no reason to be discouraged. They paid us for all labor put upon them, and expense, unless we except the interest on the money expended on the bees and fixtures; but good years they will pay all that back with compound interest. Taking one year with another, bees pay better than any thing else on our farm, either live stock or grain. MRS. L. C. AXTELL.

Roseville, Ill.

Mrs. A., I am afraid a great many will be tempted to say, that, if this man and wife could not stir themselves enough to get some old clothing, or even some old newspapers, and snug up their beds, they ought to suffer. But how about the poor helpless children? And, again, has not the Master said, "Inasmuch as ye have done it unto one of the *least* of these ye have done it unto me"? We certainly ought to alleviate, in the best and wisest way, suffering of any kind. I can not afford to sleep cold. It does not pay; and if when I am at home, or when away from home, I find that I am getting the least bit chilly in the night, I get hold of every thing available to enable me to warm up. Newspapers will do tiptop if you can't do any better. Tuck them under you and over you. In our own home we have some spare quilts upon a shelf in a neighboring clothes-press, and I often skip up to that shelf and tumble over the bed-clothing at any time during the middle of the night or close to morning, when I feel that I am in danger of taking cold. It is true, poor people have not all these *comfortable* conveniences; but surely they can pick up old horse-blankets, coats, dresses, overcoats, or something of that sort, and, as you suggest, large bolsters or bags of straw. If they have not straw, let them get some of their neighbors. Perhaps I am not very familiar with the destitution out West; but I am sure that *I* could hunt up something to keep out the frost, no matter where you put me.

RECORD-BOOKS FOR THE APIARY.

DR. MILLER DEFENDS THEM A LITTLE.

ON page 931 of GLEANINGS for Dec. 15, friend Hyde tells us how to fill empty combs by rubbing the hand over the comb. I have tried this, but it was such slow work in my hands that I gave it up. Moreover, in order to fill the last comb it was necessary that there should be a surplus of syrup, which was objectionable.

SUGGESTION ON SMOKER.

Friend Hyde's suggestion reminds me that, for the last two seasons, instead of using wet shavings or grass to put on top of shavings in the Bingham smoker, I have used a circular piece of tin, large enough to fit loosely in the smoker, and filled full of ⅜-inch holes. A wire handle is attached to the middle of it, bent into a ring at the end. This handle serves the double purpose of lifting out the cover and of holding the cover tight down on the shavings. It works well.

PINE CONES AND LEAVES FOR SMOKER FUEL.

The mention of "pine straw" on page 954 reminds me of our practice at the Belden apiary. This apiary is in a beautiful little evergreen grove of firs and pines, and the ground is covered with leaves and cones. Last summer was very dry, so that all we had to do was to reach down to the ground and fill up our smokers with leaves or cones, generally cones, and we had a good and lasting smoke. To those who can easily obtain them, I recommend dried cones.

RECORD-BOOKS.

On page 886 friend Swinson gives his plan of keeping records, and in your reply, friend Root, you give your objections to books. I suppose you much prefer tacks and tablets, and probably friend Swinson couldn't do so well with them. Often it happens that a man's own plan is for him his best plan, and he should have charity enough to believe that, for some one else, some other plan may be better. For 20 years or more I have kept record-books, and, of course, am prejudiced in their favor. One year I tried tacks for keeping record of queens, but concluded I liked the book better. I never tried slates or tablets, but there are some reasons why I don't care to try them. Some years ago I hung some heavy paper cards on my hives, and one day I found every one of them torn off. I never knew whether some animal did it, or some mischievous person; but I don't want any way of keeping a record that allows the *possibility* of being so easily disarranged, although such disarrangement might never occur.

But I will give you a much stronger reason for my preference. I like to have all my work planned ahead. In fact, it is often quite necessary that I should so plan it. Now, in laying out my plans I must have in view what is to be done in all four apiaries, and I can hardly see how I could do that without having a record of all before me, and this I could not have with the tack or tablet plan. Again, suppose I have only one apiary, and a rainy day occurs so that nearly all the work for that day must be postponed. No matter how hard the rain pours down, I can sit or lie in the house and look at the condition of every hive in the apiary, and decide what demands attention the most imperatively and what can be postponed. But I need not enumerate all the advantages that obtain from the ability to sit in the house and see just exactly what you would see by going around and looking at the tablets in four different apiaries. Now for your objections, friend Root. "You have always got to carry the book with you." Yes, but it never occurred to me that that was an objection. The book is part of my regular "kit" that I always have in my tool-box, and, instead of objecting to its company, I find it exceedingly convenient, if I happen to find a queenless hive, to reach for my book, without rising from my seat, to see just where I can get a queen, without running to several different hives. Yes, the book does "become soiled with honey, propolis, beeswax, etc.," but not so as to become illegible, and don't know that it is objectionable, except that sometimes two leaves will be glued together. I don't like that; but as I have a new book every season it doesn't get so very bad.

"Second, the book is liable to get lost." Oh, no! it is 12 by 6 inches (costs 25 cents), and is always kept in the tool-box when not in use.

"Third, with your book system the condition of the hive can not be told at a glance some distance away." Yes, *sir;* I have often told it at a distance of five miles away. Can you do any better with the tablets? Now, suppose the case that you mention on page 912—a limited number of queen-cells on hand, which must be given to the colonies which have been queenless the longest. The large date stands out conspicuous on your slates, so that you need not "strain or squint the eyes, as the slates on the cover are examined one by one," but it takes time to go from one to another, even if you can see those large dates ten feet away; and before you have had time to examine half a dozen I will open to the page of memoranda and tell at a glance which hive or hives in four apiaries have been longest queenless. Now, if, after what I've said, you will still keep on using tablets, I'll—think just as much of you as ever. C. C. MILLER.

Marengo, Ill.

Now look here, friend C. C. If you keep on using your record-book, I am going to think just as much of you as ever, and—yes, I will go a little further—I shall think a little *more* of you than I did before, and also of the other friends who use the books, for I see more reason for their use than I did. I presume one reason why I dislike a record-book is, that so much of my work is among books and records that I become so thoroughly tired out and exhausted in being obliged to consider them, it is a relief to me to throw them away and get out into the open air. You see, circumstances alter cases. Now, I think that, even if I used a book—and you give us some very good reasons for so doing—I would have the slates also. Even if you have a book, you have to have numbers on your hives; for why don't these same mischievous spirits that lurk around your hives scratch off the numbers just to bother you?

IMPROVING TOMATOES.

THE MIKADO; SOME VERY VALUABLE SUGGESTIONS FROM W. J. GREEN, IN REGARD TO IMPROVING VEGETABLES IN GENERAL.

FRIEND ROOT:—I did not mean to be understood as saying that the Mikado, or any other variety of tomato, can not be improved by selection, but that I think there is a limit beyond which we can not go. My belief is based partly on my own experience and partly on the experience of others. So far as I am aware, all of the smooth-fruited sorts were such from the beginning. They may have originated by crossing, but when *discovered* were smooth, and by selection were increased in size. Mr. Livingston worked for some time to make rough sorts smooth, but met with no success. The Acme, and, in fact, all of his varieties, were smooth from the start; but by selection he increased the size and earliness. If any one has succeeded, by selecting the smoother specimens from fruit of the rough sort, I should like to hear of it. I am aware that varieties may be and have been improved by selection; but that any rough-fruited sort has been made perfectly smooth by this method I am inclined to doubt, although it may have been done.

It is not the office of selection to change types, but rather to fix and perpetuate such as seem desirable. Unless there is a tendency to vary in the direction toward which we are working, we soon come to a stand and are obliged to resort to some other means. If we find that a variety shows little or no tendency to vary in a desired direction, we may possibly cause the wished-for variation by crossing. The upright, or tree tomato, is quite late, and the fruit very irregular; but the plant is of a dwarf upright habit, which for some reasons makes it very desirable.

Mr. Goff, of the New York station, crossed this and some of our common sorts, and has succeeded in getting an early, smooth-fruited variety, with the upright habit. I will not venture to say that he could not have accomplished this by selection alone, but it seems improbable, for the reason that the habit or character of the tree tomato was so strongly fixed that it showed little or no signs of variation toward smoothness and earliness. The crossing broke up this fixedness of character; and from the varieties that appeared, one was chosen and its character fixed by selection. Usually we want fixedness of character in a variety, but we may be baffled in our efforts to improve a variety *because* of this fixedness.

The Mikado is not a hopeless subject; but my plan is to cross it with one of the smooth varieties; and yet there is only one chance in a thousand that *this* course will give the desired results, for we know so little about heredity in plants that it is impossible to say what variety to cross upon it. We already have two distinct smooth-fruited varieties having the same general appearance of plant as the Mikado. One has fruit like the Acme, and the other like the Perfection. Both have smaller fruit than the Mikado, but are quite equal to it in vigor and productiveness. I regard them as more promising than the Mikado, but my expectations may not be realized. You can hardly have had the true King Humbert, since it is quite smooth with us. The prices named that we obtained for tomatoes were for 1886. This is a hard market in which to sell rough tomatoes. W. J. GREEN.

Columbus, Ohio.

Many thanks, friend G. You give us an insight into this matter of improving on our fruits and vegetables that I confess is new to me, and it may not only save myself but hundreds of others much useless labor. I am very much obliged to you for having gone over the matter until it is evidently plain to us all. In saying we have two distinct varieties having the same general appearance as the Mikado, do you mean that these two are the Acme and Perfection? The smaller fruit would be a great objection with us; and on our soil we have never found any thing that had the vigor and productiveness of the Mikado. In fact, we get about as many bushels of smooth ones as from any other plant, with the rough ones thrown in. If you can get some seeds of the King Humbert that are round and smooth, I shall be glad indeed to get them. Ours were purchased of Rawson; but I do not remember to have seen a single tomato like those pictured in his catalogue. They were oblong, like an egg, it is true; but instead of being round they were cornered, as it were. A good many were also inclined to be double, or partly double. While they were not lobed, like many of our common tomatoes, they were irregular in shape, no two being alike. I notice that a good many of our agricultural papers of late advise planting such vegetables and fruits as you have found to do well on your own land during former seasons. Is not this pretty good advice? and may it not explain so many widely different experiences? I thing it an excellent thing to try the novelties; but try only a few, and label them carefully. When you find something that suits you, enlarge the area, and so on. Very likely, with vegetables and fruits people have notions, much as they do in regard to bee-hives; but when one succeeds in getting good crops and good prices, we can excuse him if he has a good many notions.

THE WIFE'S SHARE.

A BEE-KEEPER'S WIFE TAKES FRIEND TERRY TO TASK A LITTLE.

BRO. ROOT:—I have just been reading friend Terry's article, "The Wife's Share," page 86, and wish to say that I heartily indorse *nearly* all of it. I have seen many a wife who has shriveled into a mean and narrow character, or that has descended so low as to resort to deception and even theft, rather than ask her husband for what she felt to be *hers* equally with him. Again, I have seen them become defiant and quarrelsome, as well as the opposite—poor, little, wilted characterless creatures, from whom the womanhood seemed all taken away. My heart always goes out to them in loving sympathy, because I am so blessed. My husband is one of those to whom friend Terry has "nothing to say." I can say from experience that the gentlemen will not have to complain of extravagance if the purse is made *equally* free to both husband and wife, providing she *also* knows every thing about the business. Women, as a rule, are *not* wasteful if trusted, but rather the reverse—saving and careful.

The part of friend Terry's article which I object to is his unfortunate expression in regard to Paul. Now, I have not the slightest idea that he thinks of doubting the inspiration of our precious Bible; but I do think that the critical reader *might* arrive at this conclusion. Listen! "To be sure, Paul did say over 1800 years ago that the husband was the head of the wife: it wouldn't do for him to get too far ahead of the times in which he lived. Were he preaching in Ohio to-day I should expect very different sentiments from his lips." Hark, again! "For I have not shunned to declare unto you *all* the counsel of God." "And how I have kept back *nothing* that was profitable unto you"—Acts 20: 20, 27. "But though we, or an angel from heaven, preach any other gospel unto you, than that ye have received, let him be accursed"—Gal. 1: 8. Could Paul get too "far ahead of his times," when, guided by the Holy Spirit, he wrote for the *whole* of this dispensation? Take friend Terry's own text: "Husbands, love your wives, even as *Christ* also loved the church, and gave himself for it." This lesson of humility and self-sacrifice is touchingly complete.

Every true Christian woman will take no exception to the husband being the "*head;*" and he, if fulfilling Paul's command, will never assume *unchristian* authority over the "weak." The sacredness of our Holy Bible can not be presented to the mind with too much force. If we study it carefully, praying to be guided by the Holy Spirit, we shall be surprised and rejoiced at the flood of light beaming from its every page; and thus we can each one say, "The Bible is truly a letter from my heavenly Father to *me*."

In these perilous times, when infidelity is rife in every quarter, even in our churches; when it is taught in our public schools, and the Bible is expelled from them, we, as Christians, will do well to guard carefully our words, that even the weakest may not stumble thereby.

MRS. E. M. HAYHURST.

Kansas City, Mo., Feb. 15, 1888.

My good friend Mrs. H., may I suggest that we be a little careful about dwelling too much on one side of this matter? What I mean is this: I have seen *husbands* who were "shriveled into a mean and narrow character," and, in fact, who had "descended so low as to resort to deception and even theft," rather than go contrary to the wife's orders. Now, you and I and friend Terry know that, where Christ is foremost in the household, and self and all else is secondary, these sad spectacles are cured entirely. I think you are a little severe on friend Terry. No doubt many veterans in Bible study *did* smile a little at the way he expressed it. Suppose I put it in a slightly different form: If Paul were at present here in Ohio, I hope and trust he would not find it necessary to speak to us as he did to the people in that early age. One of the most glorious things in regard to the spreading of the gospel, is, that it protects the weak; and especially has it for ages uplifted woman, and placed her where I am sure God intended she should be placed.

THE LAW RELATING TO QUESTION NO. 10 OF THE QUESTION-BOX.

ALSO TO BEES IN GENERAL.

FRIEND ROOT:—While perusing some back numbers of GLEANINGS my attention was attracted to several answers in response to your question: "If an employe discover a swarm of bees during working hours, do (would) the bees belong to the employe or to the employer?" This inquiry, though not certain on its face, seems propounded as a legal question. If the question, as worded, were put in issue affirmatively by an employer, the employe might demur, alleging that the affirmation does not set forth what certain service the employe engaged to perform. If it be among his duties to discover and hive bees, or search for swarms, clearly then the products or fruits of his service "during working hours" would belong to the employer; but if otherwise, the legal title vests in the employe. Bees are, in law, qualified property, not fully reclaimed from their state; and the only title which can be acquired is actual possession—working in hives—or constructive possession—finding them as strays and within view of them. But in case a party finding bees not hived, and leaves them not hived, and loses sight of them, and another pary discovers them, the prior title is abandoned, lost because identity by former finder can not be shown. If A finds a "bee-tree" on B's land, A may hold the bees if B has not discovered it; but as trees partake of the freehold, and the combs being attached to the tree, the comb and honey becomes in law the same as any "fixture," thereby not movable, or subject to being lost or strayed. Again, if A pursues a swarm of bees from his hive he retains his title, constructive possession, so long as he keeps sight of them; but if he lose sight of them he loses his title by reason of losing identity, though he regains title if he finds them unclaimed, and that, too, no matter where; but if he do damage while pursuing or removing the bees from B's premises, B might recover for the actual damage. Those who gave an opinion to the said question had in view their notion of the equity of the case, the same as a case submitted to arbitrators. My opinion herewith expressed is based on settled rules of law, regardless of equity rights. A case duly submitted to arbitrators, their decision is not subject to appeal nor rehearing, but is as final as any court of last resort in the whole realm. Civilized nations are in favor of yielding controverted claims to arbitration rather than declaring war. I have not consulted an attorney—don't have to. If you present this to Messrs. Bostwick & Barnard, or to R. C. Curtis, Esq., attorneys, in Medina, they will, at a glance, concur with the writer.

Richford, N. Y. C. J. ROBINSON.

Very good, friend R. I believe, however, I would try to settle all such differences, and, in fact, almost all other differences, by giving way; that is, differences between neighbors and people who are ordinarily considered to be fair and honest men. Let a man have his own way about almost any transaction that may come up, but decide in your mind that you think you will not deal with him in the future, if his ideas of things do not please you. I have never heard the law interpreted as clearly as you put it; and I confess to a feeling of respect for our laws, if they are all framed with as much wisdom and care as this one in regard to bees, as you bring it out in the above.

NUMBER OF COLONIES PER SQUARE MILE.

SOME VERY VALUABLE FACTS FROM FRIEND FREEBORN.

DR. MILLER wants to know how many colonies we should keep in one apiary; so do you, Mr. Editor, and so does your humble servant. I I have been trying to learn the exact number for 30 years, and don't know yet; and I don't think any one will know unless he has the rest of the factors in the problem besides the number of colonies. The other factors would be, How many acres of clover or buckwheat, or basswood-trees within three to five miles? How much rain, frost, sunshine, and south wind? How much of the time does the thermometer mark the best temperature for the secretion of honey, etc.? If we had command of all this knowledge, we should probably find that some years the profitable number would be 25; the next season, 100; and possibly the next, 500; and the next would be like the doctor's location last season, when the answer would be, no profit in any number. Now, while it might be a fact that the extremes would run from none in a very poor year to 500 in an extra year, the probabilities are that somewhere between the 500 and 25 there is a number that, for a term of years, would pay us better than either extreme; 166 to the square mile would be heavy stocking; even 100 would be large, if the honey-source were white clover, allowing 15 pounds per acre. I think this estimate high enough. I would give 100 colonies about 100 lbs. each—too small a quantity to supply the wants of the bees and give the owners much surplus.

If we could divide the mile just right, one-half white clover, the rest soft maple, willow, basswood, and buckwheat, we should have the model mile you speak of. In my 30 years of experience I have kept from 2 to 450 colonies, and have, in that time, within ten miles of here, tested the honey-resources at some 30 different places. At one time I was keeping 350 colonies in 5 different apiaries — the furthest 7 miles from home. The greatest yield from these five lots in one year was 30,000 lbs. extracted honey. As I attended personally to these five lots it kept me busy, and I had more traveling than I relished. Finding that others kept larger numbers together than I had been doing, with good results, I concluded to condense mine to fewer places.

In the spring of 1886 I had 300 colonies, located as follows: Home lot, 45; Pickard lot, 7 miles west, 97; Sextonville lot, 5 miles south, 158; total yield from the 300 colonies, 42,000 lbs. extracted honey, of which the home lot made 5000 lbs.; Pickard lot, 11,000; Sextonville lot, 26,000. It will be seen by this statement, that the largest number of colonies gave the best average. They were close to basswood timber, as were the Pickard lot. The home lot would have to fly 3, 4, or 6 miles, according to direction. The amount that the 158 colonies gathered satisfied me that I did a lot of useless traveling when I had 350 colonies spread in five apiaries. At present I have 300 colonies divided into two lots—100 at home and 200 at Sextonville; and for myself I don't care to keep bees in a location that will not support 100 or more colonies.

How many colonies to the square mile, would vary with the location. I have seen plenty of miles here, or near here, that ten colonies would overstock. To make any location do its best in supporting the greatest number, I should prefer that they have no competition nearer than ten miles; for bees will do quite a fair business, things being favorable, carrying honey five miles or more, though they would do much better with nearer pasturage.

I also was much interested in the account of Capt. Hetherington's operations, as given by the editor of the *British Bee Journal*. I am sorry that the captain won't tell us all he knows; but it is just possible that he doesn't know any more about the yield to the square mile than the rest of us.

And now, Bro. Root, when you get that square mile of honey-yielding plants fixed up so as to beat old Dame Nature's best effort, let us know, and I will try to go out and take a look at it.

The California fellows will tell you that you will have to hurry to beat a mile of their white sage for quality or quantity, and we shall think here that, if you beat a mile of Wisconsin basswood in a good season, that you will have to stock your mile of artificial pasturage with the most judicious selection of plants to secure succession for the season, or you will get left. Allow me to suggest, that, while you are taking the time to rig up the model mile, you come to Wisconsin and buy 640 acres of basswood already planted, and preserve it from the devouring ax, and you and Dr. Miller ship your bees out some year and enjoy yourselves in seeing them gather a small portion of what is yearly lost in this State. S. I. FREEBORN.

Ithaca, Wis., Jan. 24, 1888.

Well, old friend, you have given us just exactly the facts we were after—especially the point where you made 158 colonies in one locality do just as well, or better, than if you had scattered them about in two or three localities. I have long suspected that there was a very great difference in localities as well as in seasons. Your suggestion, that we take care of the honey already going to waste, instead of waiting for years to get us a good honey-farm to order, is a good one. How much would that 640 acres of basswood, already planted, cost, pray tell? And do you have any idea that the basswood covers the 640 acres any thing like as evenly as they are scattered over my ten-acre basswood orchard? You speak about taking a trip to see my model square mile. Well, I would gladly take a trip to see a square mile of nature's own getting-up; but I think you would want more than 166 colonies to gather profitably the nectar. I think, as you say, that it would very likely take 500 during a good year for basswood. Will the friends of GLEANINGS please tell us if they know of a square mile of basswood anywhere—or, at least, where there is a square mile where the prevailing timber is basswood? I think I would go further to see it than to see market-gardens and greenhouses.

HEADS OF GRAIN
FROM DIFFERENT FIELDS.

JAPANESE BUCKWHEAT, TIERING SEPARATORS, ETC.

I SOWED 4 oz. of Japanese buckwheat in drills, and think, if nothing had happened to it, I should have had a bushel; but just as soon as the kernels began to get about in the milk, the birds began to work on it, and they lived on it until it was harvested, and the mice destroyed a lot; but after all I got about a peck. It was a pretty sight when it was growing. Some was over five feet tall. It filled better than any other buckwheat I ever saw. The bees worked on it the same as on silverhull. In my opinion it is a fine thing, and far ahead of the common kinds.

I should like to inquire how those who tier up the section-cases two or three high use the hive-cover made to cover only one case. I know some use cases the same size as the hive, and no outer cover, except on top, which is, of course, the cheaper hive; but I don't like that way quite as well.

SEPARATORS OR NOT.

I don't like separators, and don't think I should ever use any; but when cases are first put on in spring, the bees are not apt to fill a large case, and so will not build straight combs; but when a new swarm is hived, and crowded into the sections, it is altogether different. What separators I have used have been of wood, and the bees gum them to the sections so much is the principal reason why I dislike them. Perhaps tin would be better. I think two cases, large enough to cover the L. hive, would be better than one, and then one could be put on at first with twelve or fourteen sections; and, when the bees needed it, another, and so one would be finished first and taken off, and an empty one put in its place. I think this way would work well, and the bees not be obliged to occupy so much room at once at the first of the season.

I got but little honey last season, as it was so very wet. I never knew so poor a honey season before. I increased from 17 to 32, then doubled back to 21, to save feeding so many. C. E. WATTS.

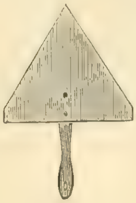
Rumney, N. H., Jan. 31, 1888.

Friend W., I suppose you refer to our regular five-inch half-story cover. There is no trouble at all in tiering up, providing you use a Simplicity body. You can then tier up three high, which will be as many cases as you will probably want on a hive at one time. Of course, when there is only one section-case in the upper story there is a great deal of space left, and the ripening process of the honey can not go on as rapidly. If, however, a T-super cover be dropped right down on top of the section-case the difficulty will be remedied. When you desire to add another super, lift off the Simplicity body, raise the first super, and place the second under it. Toward the latter portion of your letter, you suggest putting on only one case at a time, and urge, as a reason, that the bees will not be obliged to fill more space than they need at once. If your colonies are as strong as they should be at the beginning of the honey-flow, and the bees have entered the sections in earnest, I think you will lose some honey in not practicing tiering up according to the method I have given above. Of course, you must exercise judgment as to whether a colony needs another super. When honey is coming in slowly, or toward the end of the honey-flow, it will be a mistake to give the bees another super.

WYRICK'S EXTEMPORIZED HONEY-KNIFE.

Below I give you an idea of a very useful article that any handy man with a few tools can make.

Take a section from a Buckeye mower, or any other mower that has large cutter-sections, or knives; get a section that has been ground to a point.



Punch two holes, thus, and rivet a handle on thus, with the bevel, or ground side of section, on the under side, like the Bingham & Hetherington uncapping-knife. It is handy to lay on your uncapping-table, and will uncap honey faster than you might think. I used it last summer and I like it. So far as I know, the idea is original with me.

Cascade, Iowa. M. WYRICK.

Although I may be mistaken, I think that somebody else suggested making a knife out of a section of a mower cutter-bar. It is, in fact, Bingham's knife on a small scale.

GLUED FOUR-PIECE SECTIONS.

I find in GLEANINGS for Jan. 1, question No. 27, that, of those who answer the question, most of them favor the V-groove one-piece, and you say, in your foot-notes, that you sell three times as many of the V-groove as you do of the four-piece. Now, I was wondering if those favoring the one-piece section because of their being stronger ever tried the beautiful four-piece dovetailed section put together by the machine called the "section-gluer." It is simple in construction, and easily operated by the foot. It leaves the sections firmly pressed together and properly formed. It is very rapid in its work, from 800 to 1000 being an average day's work after a little experience. I have used the nailed and your beautiful one-piece section, and have used the four-piece devetailed section; and for strength none equal it when put together with this machine, and glued. D. STODDARD.

Ballston Center, Saratoga Co., N. Y., Jan. 27, 1888.

I suppose the glued four-piece are very nice and strong; but for all practical purposes do we need them so strong? As for speed, instead of 1000 as a day's work with the glued section, the one-piece can be folded at the rate of 1000 *per hour*. Some years ago a friend sent us a machine for putting together and gluing sections; but as comparatively few seemed to care for them to put up sections in that way, the apparatus was never used very much.

PREVENTION OF SWARMING, AND HOW IT IS ACCOMPLISHED BY ONE BEE-KEEPER.

On page 23 Mr. H. P. Langdon wishes to hear from some one practicing the non-swarming plan. I have practiced it for years. I commence about April 1, with one story at the bottom, or stand, where the bees have wintered. By this time that story will be full of bees. I place thereon another story filled with empty frames. Within about ten days that story will be filled with bees and brood, when I place another story on top. I continue placing them in that way as long as the queen will fill with bees, getting them three and four stories high, and have had to build up to six stories, depending on the prolificness of the queen. I never place empty ones at the bottom. The combs are sure to be empty at the bottom, if there are any in the hives. By so doing they scarcely ever get the swarming fever. If I find one building cells I immediately divide it and that ends the swarming fever, taking the old queen with the new colony. The object in doing so is, I have a bushel or two of bees to gather honey when the season comes on; and after the season is over I divide as many as I wish; and, also, I can be away from them and attend to them at my leisure, if necessary. ALBERT WELLS.

South Pittsburgh, Tenn., Feb. 6, 1888.

Friend W., your plan of preventing swarming will usually work, I believe. It is, in fact, the plan recommended by the Dadants, to get extracted honey. Give room by piling up stories; and when the season is over, extract the whole at one time.

FURNISHING WHOLESOME READING FOR THE DESTITUTE.

Brother Root:—Realizing from the facts of the past, that GLEANINGS is read and loved by many hundreds of kind-hearted people, I would, with your permission, avail myself of this medium to appeal to its philanthropic and intelligent readers in behalf of the people in this section of country; and I am sure I may confidently expect your hearty co-operation. In this new country are many persons who could be induced to read, and also to think, but whose facilities for obtaining reading-matter, especially that of a wholesome kind, are limited indeed, and my plan is this: Being engaged in an itinerant business (selling medicines), I would gladly take upon myself the duty of distributing any books, periodicals, or papers, kindly sent to my address at Arnoldville, I. T., and shall think myself fully compensated when I shall have handed them around where needed. G. C. STOKELY.

Arnoldville, I. T., Dec. 18, 1887.

Friend S., you are undertaking a noble work indeed, and I hope the friends all over our land who read GLEANINGS will mail you suitable reading-matter for your people. If you should, in answer to this, get more than you know what to do with, you can tell us and they will hold on a bit. May I suggest that you look out that no foul seeds be allowed to get in with the wheat. In all similar enterprises it has been found necessary to put the matter, so furnished, through a sort of fanning-mill, if I may be allowed the expression. It is a fearful thing, by a blunder to sow tares where we intended to have only good seed.—Many of our readers will remember friend S. as the one who wrote the brief and touching letter in regard to the reception of GLEANINGS while his wife lay dead in her coffin. A single bee hovered over the last earthly remains of the queen of his home. In working for the Master in the way he suggests, he is certainly laying the very best foundation for meeting that loved one again.

HOW HUTCHINSON'S METHOD OF PRODUCING COMB HONEY WORKS WITH AN A B C SCHOLAR.

I have had no trouble, except with two swarms, and they seemed bent on building drone comb, so I had to contract the brood-chamber to two empty L. frames and one empty comb, and added empty frames as fast as they needed them, so they built worker comb. The queens were young. I found no use for the wood-zinc slatted honey-board, but use plain wood-slatted honey-board, and the queen never troubled the sections. I generally hive them on the old stand on five empty frames and one empty comb. Put on slatted honey-board and the T super of sections, and all is well done. I believe that it would do to leave off the section the first day, or till they start brood. I think the book would have been worth the price, even if I had had but one swarm this season.

A QUEEN GNAWING CAPPING OFF BROOD TO GET A CHANCE TO LAY.

I saw a queen do something that the older heads have never seen. Last year, the first Italian queen I reared I found gnawing the caps off the brood. In a few days she began to lay. They have not swarmed this season, but are making lots of honey. If I mistake not, you say you never saw a worker-bee sting a drone. My bees began to kill out their drones about the first of the month; and I saw, but a few days since, several bees stinging drones, and one of them left his sting in the drone. There is no mistake about this. C. F. GRUBB.

Jubilee, Dav'n Co., N. C., Sept. 9, 1887.

I think you are mistaken, friend Grubb, in thinking the queen was gnawing the capping in order to get a chance to lay. Either she did not know what she was doing, or else she supposed there was honey under the brood-capping. Young queens, before being fertilized, often cut up queer capers. I once saw one, the very day she was hatched, go around to the empty cells and insert her body in cell after cell, exactly as a laying queen does. Of course, she did not lay any eggs—she only went through the motions. I concluded she had got her little head muddled somewhat in regard to the *order* of exercises on the programme laid down for her by good old Dame Nature.—A good many have reported as you do, seeing worker-bees in the very act of stinging drones, since what I wrote.

ROACHES, AND HOW TO GET RID OF THEM.

Although I use all protection possible, somewhat resembling P. Benson, when I get all my "fixins" on, yet the little rascals pop me every chance they can get. I should like to know if there is any way to get rid of roaches. Why do they infest hives? Do they eat comb or honey? There are always dozens of them in each hive, and catching them is something like catching the Dutchman's flea—they are quick, I tell you. I expect to Italianize my stock this spring, and this is my plan: Put a frame of eggs, from my Italian colony, into each of my native stocks, removing the queen at the same time. How will this do? Or will it be better to give them a queen-cell from the colony I have, or purchase a select tested queen and use her eggs? You will please give me advice in this matter.

D. C. McCAMPBELL, M. D.

Harmontown, La Fayette Co., Miss.

Friend M., some of our Southern readers will have to answer about the roaches. We never have any thing of the kind around here. The plan you suggest for Italianizing, we would not advise. The bees are more likely to start queen-cells from their own eggs and larvæ than from the frame that you give them. None of the plans you suggest are just the thing; but as the subject is quite a lengthy one, we think you had better consult the A B C book or some other text-book, in regard to Italianizing.

THE BEE-SPACE, AND WHY THE BEES FILL THE LOWER AND NOT THE UPPER ONE.

It looks like a foolish question to ask, but I can not see why the bees would not build comb in the bee-space, as much so as they would in the one next to the brood-nest. S. W. TOUCHTON.

Havre de Grace, Md., Feb. 13, 1888.

It is a little curious, friend T.; but the fact is, bees do not fill the upper bee-space. Filling the lower bee-space in the honey-board seems to satisfy their mania for building in brace-combs. This difference might be accounted for by the fact that the bee's reason, or instinct, seems to teach him that his brood-combs must be securely fastened to some object *above*, and that, unless such attachments are made, his combs will fall. While this characteristic is strongly manifested in all his workings, he never takes the same pains to support the combs from below. Indeed, such supports would be useless without the other fastenings, and we shall have to acknowledge that such philosophy (if he can philosophize thus far) is correct. Well, then, after he has gotten above what seems to *him* to be the real support of his combs, as, for instance, the slats to the honey-board, he reasons that, for the next set of combs, there is no use in building them from the bottom, but from the *top*, so he leaves the bee-space untouched. This, however, can only be conjectured. Perhaps some one else can offer a better reason for the bees not filling the upper bee-space with brace-combs.

BEE-KEEPING WITH OTHER PURSUITS; EVANGELISTIC WORK SUGGESTED.

Quite a good deal has been said regarding occupations to go with bee-keeping. Fruit-growing, gardening, poultry-raising, selling sewing-machines, etc., have been suggested or recommended. Now, why doesn't some one suggest active Christian work? It is well known, that pastors of small village churches are but poorly paid, as a rule, and, in a great many instances, they do not get enough to support their families. I am sorry to have to say it, but I have known cases in which ministers have gone to a new field, and left a lot of unpaid store-bills; and we know of some business men who have been prejudiced against the Christian religion by this very thing. Now, since those who have means will not pay enough, together with what the poorer members pay, to support the ministry, would it not be better for a poor minister to keep bees for a living, and preach a part of the year, and thus be able to pay his honest debts and keep a clean record? Would he not do more good in the long run? Will those who know, tell us how many months in the year a man could devote to purely evangelistic labors if he were the keeper of 50 colonies of bees, and gave them proper care? or how many months is a man required to be at home, giving daily attention to the bees?

Browntown, Wis., Feb. 6, 1888. H. LATHROP.

Friend L., where a bee-keeper, or, in fact, any man who follows any secular interest, whatever evangelical work he does is supposed to be done without pay; that is, without any pay in dollars and cents. I do not mean to say that a man does not get any pay, for I think he gets the best pay in the world; and a good many people rather expect, when a minister keeps bees, that he ought to do so without pay—give the honey to the poor and to the sick, etc. I know quite a number of pastors situated as you suggest, who find the income from their bees a very great help indeed in adding to slender salaries. The grocers are always glad to get hold of *ministers'* honey, and I guess that people in general buy it a little more freely, and may be pay a little better price, because it was produced by their beloved pastor. My last expression is the right one, is it not?

SURVIVAL OF THE FITTEST (THE QUEEN).

On Saturday morning, Jan. 28, the weather had moderated sufficiently for me to take a peep at the bees. I found four colonies dead. This morning, while taking out the combs and brushing off the dead bees, I happened to notice the queen. She seemed rather large for a dead queen, which prompted me to pick her up to take a closer look at her. After holding her a minute or two, she began slowly and almost imperceptibly to fold her body like that of a living queen. Curiosity now became excited, and I began breathing on her. No further sign of life appeared for about an hour, except that her legs, like her wings, gradually assumed their natural position, as if at rest. Finally she commenced moving her antenna, and then her front legs; then her abdomen commenced contracting and expanding; and now as I write, about two hours after finding her, she is crawling about quite gracefully. As soon as she commenced moving her legs and antenna I placed a drop of limpid honey to her mouth, which she slowly took up, and which seemed to hasten her revivication. About an hour ago I gathered up the apparently dead bees and brought them into a warm room, sprinkled them with sweetened water, and now some of them are also showing signs of life. There was about half a pound of honey remaining in the hive near one side of the cluster.

Later.—Only four or five of the workers revived.

G. B. REPLOGLE.

Centerville, Iowa, Jan. 30, 1888.

Friend R., the queen is almost invariably the last one to die, in a starved colony, and your bees did starve, as I understand it, even if they did have a comb of honey on the other side of the hive. Bees, to be safe, ought to have honey on all sides and over them, instead of being confined to a little honey on one side of the cluster.—We have revived a good many queens in the way you mention, and they usually proved to be all right, notwithstanding their chilled and starved condition.

NOTES AND QUERIES.

BUTTER-DISH FEEDERS.

WHO was the first to call attention to butter-dishes as feeders? R. C. CALDWELL.

Bloomfield, Ky., Feb., 1888.

[Friend C., we do not know—at least, we do not remember, who did first call attention to them. A year ago, some one, in a private letter, incidentally mentioned the fact that he used butter-dishes in feeding the bees. We did not think so much of it at the time, and so did not take proper precautions to preserve the man's name. Later on, it occurred to us that the butter-dishes were just the thing; and as their expense is comparatively nothing, they could be used quite largely for the purpose of feeding. In the latter part of GLEANINGS for last year, you will see that they proved to be a practical success.]

THE WOODEN BUTTER-DISHES A SUCCESS.

I have been using the butter-dishes for feeders, and find them to be the best feeder that I have ever tried. JOHN SHANKS.

Plymouth, Hancock Co., Ill.

THE JAPANESE BUCKWHEAT.

I bought one dollar's worth and got over two bushels. It would have yielded better, but was injured by frost. J. SWINGLE.

Ariel, Pa., Dec. 26, 1887.

FROM 1 POUND, TO 1 BUSHEL AND 3 PECKS.

I sowed one pound of Japanese buckwheat, and thrashed one bushel and three pecks. I think it is the buckwheat for Butler County. H. MILLER.

Fluger, Pa., Jan. 3, 1888.

QUEENS SHIPPED IN JANUARY.

Mr. Root:—The queen-bee was received in good order from Nellie Adams, Sorrento, Fla., and successfully introduced. JNO. WEIGAND.

Lynchburg Station, Va., Dec. 17, 1887.

[We are glad to give place to the above, even if it does savor of a free "ad."]

CARP IN FLORIDA.

I have, as I suppose, the most southerly carp-pond in the U. S., and carp grow all the year here.

Alva, Florida, Feb. 19, 1888. DAVID HADLEY.

WILL IT PAY TO MAKE OVER OLD FOUNDATION?

I have a quantity of old foundation in the sheet and in the sections, and I should like your views as to whether it is best to use this foundation this coming season, or will the bees work enough better to pay for remelting the wax? S. J. BASCOM.

Western Park, Elk Co., Kan., Feb. 13, 1888.

[So far as the foundation is concerned, friend B., I do not believe it will pay to make it over; but others may think differently. Friend D. A. Jones suggests that dipping it into hot water—of course, not hot enough to melt the wax—will make the foundation just as soft, and in every way just as easy for the bees to work, as making it over new.]

ONE-PIECE SECTIONS, SIDE PASSAGES, ETC.

Your questions on sections are a curiosity, sure. I would rather buy one-piece sections than take four-piece as a gift, both for strength and speed. Of what use are side passages in sections where the old Heddon super is used, as, in connection with separators, they are not used by the bees except to put propolis into? CHARLES MITCHELL.

Molesworth, Ont.

[The open-side sections can not be used with the kind of crate you mention; but there are comparatively few of these crates in use.]

HOW I SELL COMB HONEY.

I buy tin buckets, all sizes; nearly all hold 2½ gallons. Cut out comb to fill a bucket, and then pour around the comb extracted honey enough to nearly cover it. My customers seem to prefer honey in this way to any other. A 2½-gallon bucket will hold about 25 lbs., and they pay me for the bucket. Comb honey is nearly always sold out in a few weeks, while extracted is much slower.

W. H. LAWS.

Lavaca, Sebastian Co., Ark., Dec. 27, 1887.

WILL THE SIMPSON HONEY-PLANT YIELD HONEY THE FIRST YEAR?

Will alsike or Simpson honey-plant, if soon this spring, produce any honey this summer? Where can I get the Chapman honey-plant?

Clinton, Mo., Feb. 6, 1888. A. H. HEINLEIN.

[The Simpson honey-plant will yield considerable honey the first year, under favorable circumstances. By starting the plants in the greenhouse you can get a very fair crop of blossoms late in the fall. For the Chapman honey-plant, see editorial on page 146; see also our catalogue of honey-plant seeds. Alsike will also blossom to some extent the first year when sown early.]

SOME QUESTIONS—REVERSING, ETC.

Will reversing be a success? If the top-bar of a brood-frame is narrow, how is it kept from swinging when the hive is moved? What is the most suitable degree of heat for making comb and storing honey?

Wyoming, Neb., Jan. 8, 1888. I. MILLER.

[The appearances are now, that reversing is not going to be a success—that is, very few are practicing it, even where they have hives arranged specially for it.—Narrow top-bars are kept from swinging, by the use of the spacing-boards described and illustrated in our price list. If I am not mistaken, nine-tenths of all the hives in use, or more than that, have narrow top-bars. The heat in the hive, for making comb, should be, if I am correct, somewhere near 80 or 90 degrees.]

TO PREVENT SWARMING.

Bee-keepers have found it up-hill business in this section the past season. I should be glad to learn how to prevent swarming. I have tried cutting out queen-cells, but failed. I am working for comb honey. C. D. Rogers.

Scio, N. Y., Jan. 9, 1888.

[The matter of preventing swarming is too large a subject to take hold of here—better consult our text-books in regard to the matter.—Cutting out queen-cells is but a small part of the matter. It may do some good, and, under other circumstances, have no effect at all.]

MOVING BEES IN WINTER.

I have a few stands of bees about 20 miles from here, which I wish to move to this place. They will have to be transferred in wagons. Will it hurt them to be moved in the winter time, during a warm spell, when the roads are not too rough?

Chas. A. Minich.

Worthington, Ind., Jan. 25, 1888.

[Winter is an excellent time to move bees, whenever it is warm enough for the roads to be soft; and there are many times when you can move them very nicely on the snow; but I think I would not undertake it when the weather is severely cold. Some time when the snow just begins to thaw a little, or, say, only a few degrees colder than freezing, if sleighing is good they can be moved very nicely.]

WHEN AND WHERE TO SOW SWEET CLOVER.

I should like it if you would inform me, either through Gleanings or by mail, as to the proper time and manner to sow sweet-clover seed, and oblige— S. R. Morris.

Bloomingburg, O., Nov. 12, 1887.

[We have never sown more than one crop of sweet clover, and that was sown in drills, and cultivated. We had a splendid stand, and when it was a foot high farmers left the road and came over to see what new forage-plant I had got hold of. At this stage, cattle and horses would eat it somewhat, but they did not seem to care for it very much. We sowed it in the spring. Others report having failed to get a stand in that way, even when it would grow very rank and tall on the hard roadsides.]

GIVING A QUEEN TO HATCHING BROOD.

If I place 2 frames of hatching brood in an empty hive, and put a queen and her retinue in, just as they come in a cage by mail, do you think they would make a colony? Subscriber.

Dudley, Pa., Jan., 1888.

[Yes, sir, friend S., you will make a colony in time, providing there are great numbers of bees hatching every hour. This plan has been sometimes adopted in order to be absolutely certain of introducing a very valuable queen safely; but it is a wasteful way of doing, after all; for these little "innocents" will have to go to nursing bees and gathering pollen, probably, before they are fit to be sent out of doors at all. It is like making a girl ten years old do all the housework of the family, and take care of the baby besides. I have often worked on the plan you suggest, however, and watched the proceedings carefully, to see whether these soft downy young bees could be crowded into going into the fields before they would ordinarily.]

THE JAPANESE BUCKWHEAT A GOOD HONEY-PLANT AS WELL AS A HEAVY YIELDER.

The bushel of Japanese buckwheat I got from you was sown about the last of June. Only part of it came up on account of the drought; but then it came on beautifully. The rest came up after the fall rains set in, and was just in bloom when the frost took it. From what came up first I have thrashed 35 bushels, and this is far ahead of other kinds around here. I intend to sow 18 acres of the Japanese in the spring. I have 26 colonies of bees. Their stores were very light, but they worked well on it, and filled their hives well and are wintering well so far.

Simcoe, Ont., Feb. 6, 1888. C. W. Culver.

OUR QUESTION-BOX,

With Replies from our best Authorities on Bees.

All queries sent in for this department should be briefly stated, and free from any possible ambiguity. The question or questions should be written upon a separate slip of paper, and marked, "For Our Question-Box."

Question No. 37.—*Do you think it advisable to have single-walled hives protected by some sort of shade? If so, what sort of shade do you prefer?*

Yes. A roof, and shade-trees of any kind.

Dadant & Son.

Paint the hive white, and it will need no shade.

G. M. Doolittle.

No. The disadvantage exceeds the advantage.

R. Wilkin.

I think a good top-chamber cover is shade enough.

E. France.

1. Yes; 2. I prefer a shade-board made of half-inch stuff. Dr. A. B. Mason.

Yes. I use grapevines. Shade-boards are just as good, and have some advantages.

James A. Green.

It is immaterial whether shaded or not, when hives are painted white. Geo. Grimm.

Yes, by a board 2×3 feet in size, laid upon the hive, its north edge being even with the north side of the hive. W. Z. Hutchinson.

Most certainly I do. Even if hives are painted white, I should prefer a shade-board raised four or six inches above the hive. A. J. Cook.

Yes, by all means I prefer single-wall hives shaded to any double-wall hives, for summer use. I use and prefer a 2 x 3-foot shade-board.

James Heddon.

In this climate I find that the partial shade of trees is the best. Bees don't seem to do as well if in the full sunshine, nor if too shaded. Nothing affords a better shade than peach and plum trees.

Paul L. Viallon.

I like the shade of large trees, not so dense but that the air has free circulation, and this I like for my own comfort in working, rather than for any benefit to the bees. Take the whole season through, and I am not sure but the bees are as well off with no shade whatever. C. C. Miller.

Yes. In the south, a scuppernong-grape arbor is much the best arrangement I know of, as they carry their leaves when needed, and drop them when not needed; and even in the North I prefer some kind of a shade that covers both hives and the man who works with them.

O. O. Poppleton.

Yes. I use asparagus, but I think some form of board shade is the better. Asparagus is quite effective, one of the very best of green shades; but keeping it clipped properly is rather too much work. For several years after being set it seems to be nearly worthless—not shade enough, and blows down every gale; but eventually it becomes a solid mass which winds scarcely affect at all.

E. E. Hasty.

It is desirable, but not necessary, to have single and double walled hives protected against the hot rays of the sun. In my long years of bee-keeping on a tin roof and in the yard, without any protection whatever, it has happened to me only once that some of my combs in an upper story have

melted. It was caused by my neglecting to raise the flat cover of the hive, which I had been in the habit of doing during the summer months. It was then when I adopted cottage-roof-shaped roofs, which admit of a circulation of air below.
Chas. F. Muth.

Yes. We have a large Concord grapevine, covering a trellis ten feet square, which shelters eight hives—4 on the east and 4 on the south. It is an agreeable and profitable shade for the bees and their owner. Trees will do very well; but if the shade has to be created, grapevines will produce it the quickest and cheapest. Sunflowers answer the purpose tolerably well, and the seed is good food for fowls. Mrs. L. Harrison.

There seems to be a diversity of opinion in regard to this matter of shading; but if I am correct, there are periods during almost every season when shading is of considerable advantage; and it is also true, that there are periods during this same season when shading is quite a disadvantage. All things considered, I am not sure there will be any increase in the crop of honey unless the shade-board or shade arrangements are more or less manipulated; and if you undertake to do this, you will be pretty sure to have them off when they ought to be on, and on when they ought to be off, unless you make it a constant and regular business; and I am not satisfied that this will pay the cost. Grapevines or trees admit a good circulation of air, and give a shade in the middle of the day, but none morning and evening. Where the vines and trees can also be made to yield a profitable crop of fruit, I think it pays. Our Concord grapevines now give us more or less fruit every year; but even as good a man as Neighbor H. says if our apiary belonged to him his first job would be to pull all those grapevines up by the roots.

* * *

Question No. 38.—*Do bees consume more honey in localities where they can fly almost every day, than where they are housed up three or four months by the cold?*

Yes. Dr. A. B. Mason.

We should think they would.
W. Z. Hutchinson.

Judging from reports of Northern friends, I think they do. P. L. Viallon.

A swarm will consume more, as they raise earlier and more brood. Mrs. L. Harrison.

Without a doubt. Exercise consumes the tissues, which can be renewed by food only.
A. J. Cook.

I should think they would; but my experience has been altogether in the colder climate.
C. C. Miller.

One or two flights a month give the best results. More flights or less often cause a greater consumption of food. G. M. Doolittle.

I think it would be all guesswork to answer this question. It would take two men to answer—one in a warm location, and one where it was cold; then weigh the honey and weigh the bees, and then *guess*. E. France.

That depends upon how cold it is in the instance where they are housed up "four months;" and also how much they fly "almost every day" in the warmer location. I think bees consume more honey in Florida in winter than in this latitude, when the winters are mild. James Heddon.

We think that depends on a great many things. Where they can fly every day, the winter is shorter and they most likely consume less. Whenever they breed they consume more than when they do not breed. On the other hand, they eat more in cold than in warm weather. Dadant & Son.

I believe less honey is consumed when the weather is such as to permit flying when "housed up three or four months *by the cold*," provided brood-rearing is not going on. My experience is confined to the same locality, but I apply the question to different seasons of the year, as, for instance, fall and winter, or to a mild and a severe winter. If, however, the question applies to confinement in a good cellar, the answer should be reversed.
Geo. Grimm.

I have kept bees in only one locality (the north line of Ohio); but my impression is, that bees 200 or 300 miles further south require more honey to winter them. This would probably not be true of very cold single-walled hives. I let my bees go into the winter with 10 or 12 lbs. of honey—sometimes with much less than that—even as little as 4 lbs. The question seems to refer to the Gulf States, and the respondents who have lived down there must tell us. E. E. Hasty.

I confess, friends, I feel as much undecided about it as you do. Some winters I have felt satisfied that frequent flights consume the stores; other winters I changed my mind. Where the bees rear brood largely they consume stores largely. There is no question about that.

* * *

Question No. 39.—*1. How long can comb honey be kept without sacrificing any of its flavor? 2. How long can it be kept without candying and leaking, with good care? 3. What is the best method of keeping it from one year to another?*

1. An unlimited time. 2. For all time. 3. A uniform temperature of 85°. G. M. Doolittle.

1. Don't know. 2. Ditto. 3. Keep in a *dry* room of *even* and reasonably warm temperature.
Geo. Grimm.

1. Under proper conditions, indefinitely. 2. Same. 3. In a dry room, and not allowed to freeze.
Mrs. L. Harrison.

If kept in a warm even temperature we *think* it might be kept indefinitely, but we do not *know*.
W. Z. Hutchinson.

Our climate here is so damp that I find it very hard to carry comb honey from one year to another.
P. L. Viallon.

1. Indefinitely. 2. Ditto. 3. Keep in a clean warm dry place. I have kept comb honey for years; and I think if there was any change it was for the better.
A. J. Cook.

1. I don't know just how long, but for several years. 2. Some honey will candy in a few months, and other not for years, and, "with good care," can be kept indefinitely without leaking. 3. Keep in a warm place. Dr. A. B. Mason.

If this question had been asked me a year or two ago my reply to 1 and 2 would have been, "Less than a year." With my present light I answer 1 and 2, "Perhaps several years." 3. I don't know;

but for summer, at least, and perhaps for the year round, in a garret or in a building where the sun makes it very hot. C. C. MILLER.

1. We don't like to keep it beyond the following spring. 2. Hard to tell; it depends on its quality, the temperature to which it is exposed, etc. 3. Keep it in a dry warm place, as far from change of temperature as possible. DADANT & SON.

1. I do not know; I never kept any long enough to notice any deterioration in flavor. 2. That depends entirely upon the source from which the honey is gathered, and how good care is taken of it; also the quality of the comb. Some comb is thick and some is thin. Some honey will not candy at all, and other will candy in the comb in a few weeks, in spite of every thing. 3. I presume I do not know; but I believe that I do know that it is much better to sell each year's crop the same year, than to carry it to the next. JAMES HEDDON.

1. Some honey is better the very day it is brought in than it ever is afterward; apple-blossom honey, for example. Other honey tastes a little "silly" when very fresh, and has its best quality say six weeks after it is capped over. Other varieties have disagreeable flavors when new, but are greatly improved by being left six months in an old bee-tree or box hive. I presume keeping such honey in a warm airy room would answer nearly as well. As a general rule we must expect quality to decline when warm weather begins the next season. 2. I think most comb honey will not candy if well kept; and I strongly suspect that some samples will candy in spite of every thing. If honey leaks, it is either a poor article or it has been very badly treated. 3. I know nothing better than plenty of air in a warm room. E. E. HASTY.

Well, friends, it has done me a great deal of good to hear your opinions on this subject. I feel just as most of you do—that some honey, or, perhaps I should say, sometimes honey gets better by being kept a while, and at other times it does not. In our commission stores I believe they invariably offer honey that is a year old, for a cent or two less a pound than the new crop. I do not know whether it is because it has lost in quality or looks, or both. Perhaps if the sections were kept away from the dust and light, so no one could see any evidences of age about them, they might be pronounced just as good. The candying business is certainly a damage to comb honey; but I have never been able to decide whether it was the treatment or the kind of honey that caused the candying. Doolittle's reply would indicate that he thinks it is altogether the treatment. I should like to ask him if he never saw any comb honey that would candy in spite of any thing he could do. Friend Hasty has just hit the nail on the head, to my notion, when he applies the word "silly" to the taste of unripened honey. When we first began extracting, I thought it would be a fine thing to have some clear nectar, just as it came from the blossom; but the opinion of the whole family, when permitted to taste this wonderful nectar, was just about as he puts it. It was a "silly" mess of stuff, and was not honey at all. I believe that Prof. Cook claims, however, that the bees do not gather "silly" honey in their locality. Perhaps the bees have caught the progressive spirit of the Agricultural College, and ripen their honey on the wing while on their way home.

REPORTS ENCOURAGING.

AN AVERAGE OF 165 LBS. PER COLONY.

WE started with 40 colonies, spring count; 35 strong, 5 weak. We secured 6609 lbs. of comb honey—an average per colony of 165 lbs.; best Italian, 361½ lbs. in sections; the next best, a hybrid colony, 295 lbs. We use the combined shipping and honey crate, holding 28 1-lb. Simplicity sections, and practice the tiering-up plan. We do not contract the brood-nest. We use the ten-frame Simplicity hive. Perhaps we might have got more honey in the sections if we had contracted the brood-nest or used a smaller hive; but the question is, whether we could have run such strong colonies in smaller hives, and kept the swarming fever down. We have 83 colonies packed on their summer stands, with plenty of natural stores to winter on.

REPORT FOR 1887.

From 40 colonies, spring count, we secured 1800 lbs. of comb honey—an average per colony of 45 lbs.; from the best stock, 141 lbs. in sections; second best, 120 lbs. Sold down to 40 in the spring.

Goodland, Mich. JOHN & JAMES COWE.

Bees thus far are in good condition, and the first pollen was gathered Feb. 14. FLORA A. BABCOCK.

Morrilton, Ark., Feb. 19, 1888.

THE PROCEEDS FROM 2 COLONIES.

Two swarms of bees in 1886 I increased to 20. I sold two of them for $20. The rest all wintered well. I got 200 pounds of honey in Simplicity hives. If any one can do better, let me hear. I have 37 stands now. ISRAEL JACKSON.

Cambridge, Ohio, Feb. 6, 1888.

3000 LBS. OF HONEY.

My bees did very well last season. I used 1200 of the 1-lb. sections; and those I received from you brought me 2 cts. more per section than those I received at home, so you see it will pay me to use the basswood sections every time. My bees made 3000 lbs., all told. M. J. TWINING.

Hanford, Cal., Jan. 27, 1888.

OBTAINED 20 CTS. A POUND FOR HONEY SHIPPED TO A COMMISSION HOUSE.

I began the season of 1887 with 27 colonies, not very strong. By keeping back swarming I obtained 1300 lbs. of comb and 325 lbs. of extracted honey. I shipped a part of my comb honey to A. C. Kendel, and obtained 20 cts. per lb. for every pound I sent him. I had only 12 natural swarms, but I divided and built up until I now have 52 colonies that are wintering finely. L. H. ROBEY.

Worthington, W. Va., Feb. 7, 1888.

THE PROSPECTS FOR 1888 GOOD IN CALIFORNIA.

I am spending the winter in Southern California, but expect to return home in April. I have not seen an apiary as yet, nor heard of any in this vicinity, but I intend to visit one or more of the large ones before returning. There has been an abundance of rain here this winter, making the crop prospect good for the season of 1888. There has also been some cold weather for this locality—mercury down to 26 several mornings, and some of the oranges frozen. But it is warm again now, and the grass is growing nicely, covering the hills with green, and the farmers are setting out fruit-trees, strawberry-plants, etc.—quite a contrast from the frozen East. R. I. BARBER.

Pomona, Cal., Jan. 28, 1888.

A GOOD SCORE FOR 1887.

The season of 1887 was the best one for honey that I have experienced since I commenced bee-keeping three years ago. In 1886 I bought four swarms, and they wintered over well. The next season I increased to eleven, and wintered over and came out in the spring strong, and increased by natural swarming to 37. These wintered like the rest, without losing one. Last year I sold three colonies and one swarm. My bees gave me, besides, one ton of honey, extracted, and about 30 lbs. of comb honey, and increased to 61 colonies. They gathered enough to winter on without feeding sugar. I expect to bring out, in the spring, 61 colonies, if I am spared. So you see I have not lost a swarm since I commenced bee-keeping; but I dread next season, for at the present rate of increase they will get far too numerous for me to handle and run a hundred-acre farm too; but I will try to make more honey and less bees.

Elora, Ont., Can. GEO. STRANGWAYS.

ENCOURAGING FOR FLORIDA.

I have 75 colonies and one of the best localities, I suppose, in the U. S. for bee-keeping, as bees work here all winter every day, bringing in honey from a species of pennyroyal from November until April; then comes the saw-palmetto bloom, continuing until June; our rainy season then begins, and bees make but little surplus honey during that time. I have been extracting for several days, and could have been extracting a month ago; but I am clearing land for farming and oranges, and have but little time for bees. I came here from Kansas two years ago, and settled in the extreme south part of Florida, near the Seminole Indians, and find the climate as near perfect as we may expect to find anywhere. We labor under many inconveniences, such as lack of transportation, etc.; but we look for a boom to strike this, the most deserving part of the peninsula. DAVID HADLEY.

Alva, Florida, Feb. 19, 1888.

HONEY SOLD FOR 25 CTS. PER LB., AND $29.00 FROM ONE COLONY IN 1887.

I never kept bees until last year, when I bought five colonies. I worked them for comb honey; and although all my neighbors complained of a poor honey-crop I got 320 lbs. of honey, which I sold for 25 cts. per pound.

THE LITTLE BLACKS AHEAD, AND THE ITALIANS THE POOREST.

I had one colony which gave me 116 finished 1-lb. sections, and several unfinished ones. This was a valuable colony, as it brought me $29.00 worth of honey, but did not swarm, and yet they were the "little blacks;" the other four were hybrids, except one which was, I think, pure Italian. It did the poorest of all. I got only two swarms from my bees, and they were both late ones, and came in September. I gave them empty combs, and they made considerable honey, and I fed them more, so I think they will winter all right. I am trying to winter my bees outdoors. I have a chaff cushion on top, and chaff division-boards on the sides. I owe all my success to your A B C book and GLEANINGS. We have had some pretty cold weather, 20° below zero. S. H. BEAVER.

Tamora, Neb., Dec. 15, 1887.

1000 LBS. OF HONEY FROM 20 COLONIES, SPRING COUNT.

I commenced the season with 20 colonies; used some in dividing, and raising queens. It left 12 good colonies to gather honey. We took from them nearly 1000 lbs. of comb and extracted honey, and it was of No. 1 quality, clover and buckwheat. In fact, we were the only ones who had any surplus to speak of. The largest bee-keeper in this section has about 100 colonies, and his bees did not make enough to winter on; and there are others who are in the same fix. Now, we don't want to brag, but it must be that our bees must have been in better condition, and every thing in readiness for the honey-flow when it came; and another very important thing is, ours are all Italians, and all the other bee-keepers keep the black bees. We think this is proof enough that the Italians are the best. We go into winter quarters with 32 colonies. Honey sells at 12½ cts. for extracted, and 16 to 18 cts. for comb. We bought 1 lb. of Japanese buckwheat of Peter Henderson, and it grew finely. It made an enormous growth. We counted the kernels on one plant, and found it had over 500. The whole yielded 1½ bushels. We think very favorably of it, and intend to test it more thoroughly the coming year. CORNELIUS BROS.

Lafayetteville, N. Y., Dec. 13, 1887.

REPORTS DISCOURAGING.

WANTS TO "SELL OUT."

MY 110 colonies of bees were put in the cellar the first day of December, and seem to be wintering nicely, the temperature being from 40 to 45°. They make very little noise. They gave me 200 lbs. of extracted and 100 lbs. comb honey last fall, and had 20 to 30 lbs. each for winter stores. I fed them 500 lbs. nice comb honey in the frames the past season. I had 4 natural and 4 artificial swarms, so you see I belong to the large army of "Blasted Hopers." I want to sell out.

Cedar Rapids, Iowa, Jan. 16, 1888. S. J. CHURCH.

NOT ONE POUND OF SURPLUS, AND NO SWARMS.

My report for the past season is very soon made out. I had not one pound of surplus, no swarms, and a scant supply of honey for winter. This report will answer for about every bee-keeper within forty miles of me. I think we in this section are good subjects for Blasted Hopes, but I think most of us will try again. ROBERT QUINN.

Shellsburg, Iowa.

FROM 12 TO 20, AND 100 LBS. OF HONEY.

My 10 swarms of bees are wintering very well—one in cellar, and nine outdoors, packed with chaff. I had 12 stands last spring. I increased to 20, but did not get over 100 lbs. of honey. All the bee-keepers in this vicinity claim to be in the same boat. JACOB KROU.

Lakeville, Ind., Feb. 10, 1888.

OUR HOMES.

If any man will do God's will, he shall know of the doctrine.—JOHN 7: 17.

FOR some little time back I have been in the habit of meeting a neighbor (at least a resident of our own county), Sunday afternoon, in our county jail. The man had twice attempted to commit suicide, and failed; but he finally succeeded in the third attempt. The Sunday before his death I saw him alone, and had quite a long talk with him. I knew he was bent on suicide, and it seemed to me I could reason him out of it if he would only talk with me, and tell me frankly his feelings and his reasons. I prayed earnestly, before having this talk, that help might be given me to save my neighbor, if it were a possible thing to do. At first he remained silent, and refused to talk, especially when I approached the matter in question. However, by using all my energy, and calling in play every faculty that God has given me in the way of hopefulness and encouragement, I succeeded, by taking up other topics, in getting him to talk comparatively freely. I told him incidents in my own conversion, and of the ways in which God had led me when I first started out to serve him. He became quite interested, and asked many questions, and said that he agreed with a religion that bore such fruit as was manifest in the cases I have told you of. He even went so far as to say he would be glad to believe there is to be a future state of existence. He said he would give any thing in the world to be able to believe as I seemed to believe. Now, I did not succeed in making the poor man see that his life was worth saving; but the questions he put to me, and the objections he raised, stimulated me to grasp hold of thoughts and truths that I never got before; and one of these has been on my mind so much that I want to tell you of it to-day.

Before dismissing our poor unfortunate brother, however, I want to tell you this: His unhappiness and discontent, and hatred of existence, did not come from a lack of this world's goods; for, in fact, he was one of the wealthiest men in our county. His friends insisted that he was crazy, and may be he was. The Judge of all the earth, who can not err, knows, although I do not; but so far as my judgment and perception were able to determine, I could see nothing about him that indicated what I should call insanity. He was sentenced to the penitentiary, for attempting to kill another man, just before he made the first attempt on his own life, so that the prospect was not such as might make him want to live, especially without any faith in Christ Jesus, who came to save even *bad* men, and those steeped in crime. Before he made the attempt to murder, he had for years been guilty of breaking a commandment that Jesus places only second to murder—see Matthew 19 : 18. Well, he who breaks *this* commandment, settles down, so far as my observation goes, into the most hard, unfeeling, sarcastic skepticism known to the human family. When you see a man whose heart is so cold and flinty that it defies every text of Scripture, or every appeal that is likely to soften the human heart, you may be afraid that his skepticism comes from transgressions in this way.

This man had not done God's will, as in the language of our text, and he had no knowledge of the doctrine; in fact, the Bible was to him a dull book. Like Christ before Herod, where it speaks volumes to the most of us to him it said nothing. Now, don't understand me as saying that such cases are *hopeless*, only so long as the individual absolutely refuses to accept Christ as the Son of God, and the meditator. I believe that the most hardened criminal—in fact, the worst wretch who ever lived, if, in real penitence and sorrow for his crimes, he should, on bended knees, say, "God have mercy on me a sinner," would see the door of salvation swing open to him in an instant. You may say, however, that, when a man is so steeped in crime, the probabilities are very small that he will ever do this, on account of the hardening influence of transgression; and here I agree with you. He who goes headlong into sin and crime, with the expectation that he can be forgiven some time in the future, will very likely be mistaken. Where one keeps on persistently and repeatedly in breaking God's commands, true sorrow and penitence do not come to him very easily. Now, this friend of whom I have been speaking would say,—

"Then you really do believe that there is a future state of existence after this life?"

"Most assuredly, I do, my friend."

"Well, I don't."

When I remonstrated, he declared frankly that he could see no evidence whatever that there is any thing beyond this life. And now, dear friends, it is a sad thing to say, but I am afraid he told the truth—that God gave him no evidence whatever of any future—no, not even if he honestly felt it when he said to me that he would give any thing in this world to have faith in this direction. When he said it, however, he did not mean to include bowing humbly to Jesus, and confessing fully and completely the sins that weighed down his past life. His whole life, in fact, was devoted to *concealing* and *denying* his guilt—to hiding it from the eyes of man; and when taking his own life seemed to be the surest and securest method of covering and concealing the past from human eyes, he chose that way of doing it. There is no promise in the Bible, as I understand it, for any one in that attitude; therefore he refused to consider existence as a boon or gift. Instead of having in his heart thanks to the Creator for life with its privileges, its joys, and its opportunities, he flung it away.

Now, the point I wish to arrive at is the one I have often taken up in these pages. It is a point I love to dwell on; and as the years pass by, it seems to me I get brighter and more precious glimpses of the great unknown; especially while, as in the language of our text, I am striving to obey God's commands. It is those who obey the will of the Father who shall know of the doctrine. The poor neighbor of whom I have just been speaking assented to my proposition that there must be a supreme ruler of this universe; in fact, every honest man must assent to this. There was not only a God in the first place who created the heavens and the earth, but there is the same God still, and he has a plan and a purpose with it all. May be there was a time in the history of this earth when the sun shone and the plants grew and the birds sang, something as they do now, when no human intelligence looked out upon the scene. Doubtless brute nature enjoyed life in the same way that it does now. The pigs crunched the acorns as they fell from the huge oaks, with some sort of a sense of enjoyment; but I am sure that no pig ever gazed aloft to question where the acorns came from, or to consider how they grew amid the leafy branches. No pig ever got so far as that in intelligence; and even if he did, he certainly never for one brief instant cast a thought as to the origin, end, and purpose of this teeming world of life. Not one of the brute kind was ever capable (even if he cared to, which is very doubtful) of even turning his thoughts in the direction I have indicated. In considering such a state of affairs, one might pause and ask the question, "What is the use of all this, with no intelligence to look upon it and appreciate it?" I should say there is not any use, if the machinery were to stop there. These things were preliminaries; these were preparations, as it were, for the opening of the doors, at some time in the future, to the vast audience. By and by the audience stepped on the scene. God created man. Man looked in on what had been done, as through a window. At first he may have looked something as the dumb brutes did; but by and by his God-given reason prompted him to study and compare. As soon as a child can talk he begins to look at the moon, and then turns to his teachers with inquiries. "What is it? where is it? what keeps it there? what is it for?" This thirst for knowledge does not pass unsatisfied. The Bible says, "Knock, and it shall be opened unto you;" and the child finds the promise verified. So vast is the field, however, for learning and intelligence, that long years must pass; yes, before he is *fit* to enter school; then long years more must pass before he is fit to enter college; years more of drill in college are to fit him to use his God-given powers intelligently, and that he may not make stupid blunders at every turn. In a very short time his thoughts turn to the master Spirit that framed and planned these things. Now, if this pupil does God's will, as in our opening text, he certainly will know of the doctrine. He will know of God's plan and God's promises.

Not quite four hundred years ago, Columbus, impelled by this thirst for knowledge, stood up head and shoulders above his fellows, and declared that God had something in store for us beyond the vast unknown seas. Is it indeed possible, that, so short a time ago, he stood for a time almost alone in his demand for knowledge beyond the unknown expanse of water? I need not tell the story. Once when he landed, his comrades declared he had discovered an island; yes, a *whole island* that was heretofore unknown. Columbus, however, was head and shoulders above them here. He looked on the vast current of the Orinoco River as it poured forth into the sea; and as he took in at least something of the real truth, he declared, "Not so; this is no island. That vast volume of water you see pouring forth there is the drainings of a *continent*. No island ever gave forth such a stream."

Columbus exhibited only plain common sense. Reasoning from what he saw he intelligently declared what was beyond immediate vision. Well, my friends, what does this vast flood of intelligence and progress mean that pours forth before *our* very eyes? Forty years ago we went to school in log schoolhouses, and learned to read and write and cipher. As I sit here, writing bids fair to be done away with. Instead of using a a quill pen, whittled by the teacher, even a poor humble individual like myself does not use a pen at all nor pencil. I simply talk to men and women who make crooked marks, one of which often means more than a whole line used to mean in our copy-book. Now, instead of sending these crooked marks to the man I wish to speak to, a thousand miles away, he gets a nice beautifully *printed* letter. Every one of you see them almost every day of your life. This printed letter is done quicker—vastly quicker—than we used to do it with quill pens. Still further, the day is just dawning when paper and ink both seem destined to be put on the shelf. You talk to a machine. The machine stands still and mute, until called for, and then it talks back the very words you pronounced, giving back even your own tone of voice too. It talks or is silent, as the master-spirit directs. Every year shortens and simplifies plans for moving these cumbersome bodies of ours. We take such a trip as Columbus did, as we would go across the lots to a neighbor's. If anybody is starving in consequence of drought, earthquake, or blizzard, swifter than the wind the call of distress spans a thousand miles, and, almost as quickly, food and clothing rush back.

Suppose that somebody should now stand up and declare that, although these things are wonderful, God has got through or abandoned the work. We would send him to an insane-asylum, if he should keep on talking in that way. Well, now, suppose that one of our brightest young minds, say one who has made the strides that Edison has, for instance, should, by sickness, come down to death. Our doctors have not mastered sickness and death yet. Suppose you were required to give him counsel at his bedside. Would you say, "My friend, you have done a glorious work. It is indeed astonishing and wonderful to contemplate how, step by step, you have dived into the mysteries of creation, and it is grand to think of what you have given the world in return for what it has given you. Had you not been cut down here in middle life, no one can tell what new things you might have unearthed in a few years more. But I suppose it is all over. It seems to me sad that this intellect that has been built up step by step by laborious study and hard work should tumble to ashes just now, and be no more. I don't really know why God has brought you into the world, and given you these glimpses, and this longing to know the secrets of the great beyond. But nothing indicates, that I know of, that God has any plan or purpose of continuing this work beyond what we call death. It does seem as if he made a blunder somewhere; but I guess that, when you die, that is the end of you. You are rubbed out like the marks on a slate" ?

Now, friends, if anybody ever did speak in that way, I should expect a dying man to turn over in bed and ask his friends to take him away. He, like the other man, ought to go to an asylum; and it seems to me that you would be apt to find a Columbus standing somewhere at about this juncture, saying, "Not so. The intelligence that created this universe never sent such a volume of intelligence as we see pouring forth before us unless it came from *somewhere*, and we were tending to *some great end*. We who love the great supreme Architect, and trust in him, *shall* know of the doctrine, and shall have glimpses and a full understanding of the whys and wherefores of creation. We *shall* know more of the countless worlds that float before our telescopes. We *shall* know more of the mysteries of animal and vegetable life. The great and good minds that have gone before us are somewhere *still*, and we shall be with *them*, and shall *know* fully of all that we have had glimpses of here on this earth. The idea is incredible and preposterous that this brief introductory life ends all. The thought can not for one moment be tolerated, that God gives these heaven-born glimpses of himself and his greatness and glory, only to extinguish it all by striking us out of existence. The universe was planned and arranged for *us*."

A short time ago one of the friends declared that we had several times tried to cheat him out of his journal. He said we had got the money, and wanted to keep GLEANINGS back. I suppose he thought it would be of some value to us, tucked away in a pigeon-hole. I explained to him that all each number of GLEANINGS was good for was to send to our subscribers; and unless it was received promptly, and read and appropriated, it was of no use to anybody. Extra copies that do not happen to be wanted are piled off in an old barn, until we have a ton of them, and then they are sold for half a cent a pound. Now, then, suppose we should go to work and print off a whole edition, and, instead of sending them to our subscribers, we should pile them away in the barn, to be covered with dust and cobwebs. Shouldn't we be worse than crazy? Well, is the idea any more rational, that God created this universe—planned and arranged it for human beings—his children whom he loves, and yet *now* proposes to let it lie *unused* and *uninhabited?* Surely not. Well, suppose I were to watch you with your journal until you read it about half through, and then take it and run off with it—stop you in your most interesting part, what should I do with the part I carried off?* Well, my friends, what is God going to do with the great untold wonders lying beyond our comprehension or ability to comprehend, that we get glimpses of at every turn? What is behind this great wall of death?† Nothing at all, do any of you say? If there be one such among our readers, thousands will join me in the declaration, "Not so. The thought can not be tolerated for a single moment." I do not know just how many of us shall be permitted to gaze upon the splendors of that New Jerusalem; but this I do know: That he that doeth the will of the Father shall know of the doctrine.

OUR OWN APIARY.

CONDUCTED BY ERNEST R. ROOT.

THE CONDITION OF OUR BEES WHEN EXAMINED ON THE 23d AND 24TH INST.

WE have had quite a run of cold severe weather, during which there was no opportunity of examining every one of the colonies in our two apiaries since we put them into winter quarters last fall. Along in the winter we did manage to look at a few colonies which we feared might not be wintering well, or might be possibly running short of stores. Aside from this, no other examination was made until the date mentioned in the heading. Along in the winter we found two or three colonies that showed some signs of dysentery; but on our last examination they seemed to be all right, the two days of beautiful spring weather affording them a cleansing flight.

It was my ambition to report that the first examination showed that all the chaff-packed colonies were alive up to date, just as we did last year. But, one single colony which succumbed before we could make an examination, makes this impossible. We found that it died of starvation—not because the stores were entirely exhausted in the brood-nest, but because, as has sometimes happened before, the bees had used up all their stores near them, leaving only a little candied honey on the opposite side of the hive. The bees, though dead, *appeared* to be alive and healthy; and had I more faith in the McFadden theory, I should certainly have tried to revive them. Just how long they had been without stores I am unable to say. I think it is quite likely, however, they would have lived to the time of our examination, had the natural stores not candied. There was sufficient to have carried them through a couple of weeks more. When this colony was put into winter quarters last fall it had only natural stores, not having even an ounce of granulated-sugar syrup. If they had been fed a little sugar syrup, I feel sure they would not have been numbered among the dead. All other colonies, as I have said, were alive, though we did find one case of dysentery where the colony was reduced to a mere handful of woebegone, forlorn-looking bees. These we gave to another colony, as they certainly would not have lived much longer in the condition they were in. Upon looking up the record, we found that, on the 27th of October, last year, they had been rearing brood quite heavily.

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*I admit that this is a very poor and feeble illustration.

†The people told Columbus there was nothing at all behind the vast waters that stretched themselves over toward the setting sun.

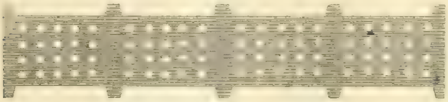
"There," said I, "they exhausted their vitality, and were in an unfit condition to stand the rigors of winter, just because of such late brood-rearing." I entertained this opinion until Mr. Spafford informed me there was another colony, under almost the same conditions, which had been rearing brood just as heavily, October 23d; and yet these bees were just as nice and healthy as any one could wish to see at this time of year, so that we can not say positively it was the brood-rearing that resulted in dysentery to the other colony. It is possible that the natural stores were such as to favor brood-rearing, and were also unfit as a winter food.

SUGAR VERSUS NATURAL STORES.

Our readers of a year ago last fall will remember that our bees had granulated-sugar syrup only—no natural stores at all—every one of the 200 colonies wintered through successfully. Last fall, a large number of colonies had natural stores, sufficient to carry them through, and were therefore not fed at all. Other colonies were entirely destitute, and were fed up on sugar syrup. In our recent examination we found that those colonies which had been fed with sugar stores were in the nicest condition possible. They were bunched up in a semi-dormant condition, such as we like to see them in, and every thing about the hives was clean and sweet. Some of the colonies which had natural stores only, showed more or less signs of dysentery; and those not showing any indications of disease appeared restless, and were all over the brood-nest.

SEPARATORS FOR OPEN-SIDE SECTIONS.

Some months ago one of our Australian customers, D. R. McConnel, ordered some separators made like the accompanying engraving.



MCCONNEL'S PERFORATED SEPARATOR FOR OPEN-SIDE SECTIONS.

They are designed to go with open-side sections, the teeth, or projections, reaching from the top to the bottom of the sections. The evident purpose of the holes is to give the bees freer access to the comb honey, the holes permitting them to pass back and forth from one section to another, without the necessity of going clear down under. Mr. McConnel designed to have them nailed on single-tier wide frames, the tops and bottom-bars of which were slotted out to correspond with the opening in the sections. As made in the cut they can be used only on wide frames and *can not* be used in the T *supers* or *combined crate*, on account of the projecting side points. Theoretically, these separators are a good thing; but we can not be sure that the extra expense will compensate for whatever advantage there may be in separators so made. For those, however, who would like to try them on their half-depth wide frames we can furnish them made of taggers' tin, like the engraving, for $2.50 per 100; without the round perforations, but with the slots, for $2.25 per 100. By comparing prices of ordinary tin separators, you will see that they cost $1.00 and 75 cents more respectively, than the common tin separators.

Some of our old customers will remember that we have for some years back made what we call perforated separators; that is, having three-eighths holes punched along at regular intervals. They differed from McConnel's separators, in that they had no projecting side-points; that is, where the tin projects beyond the regular width of the separator, so as to cover the whole exposed side of the section.

Still another separator, and one designed especially for open-side sections, has been used by the English, and, to some extent, by our American bee-keepers. By the former they are called "slotted dividers." They are something similar to the McConnel separator. Instead of the round perforations, three transverse oblong slots are made in the separator, so as to come directly opposite to the open sides of the sections. These transverse slots are designed to give the bees freer passage from one section to another; answering the same purpose are also indentations at the ends of the separators. On page 869 for 1886 we illustrated something very similar.

CAN ORDINARY SEPARATORS BE USED WITH THE OPEN-SIDE SECTIONS IN THE T SUPER?

The above question has been asked us by a number of correspondents. At first we thought they could not; but a trial shows us that they can, after the super is once ready for the hive. The open sides form projecting shoulders, and these projecting shoulders sticking out make it exceedingly difficult to get the sections in and out of a T super; and, worse still, to get the separators in between, in the right place. As the sections pass one another they are sure to catch, and the separators almost won't go where they "ort to," on account of the projecting shoulders. I have just tried it, and I know. I had to fuss for a long time; and when I got things fixed up,—well, I felt fidgetty and out of patience. I presume that friend Foster, with his adjustable section-case, obviates the difficulties I have just pointed out; but for me to use them in the T super, would certainly be intolerable if I had to fill up enough T supers with separators for the season's use.

GLEANINGS IN BEE CULTURE.

Published Semi-Monthly.

A. I. ROOT,
EDITOR AND PUBLISHER,
MEDINA, OHIO.

TERMS: $1.00 PER YEAR, POSTPAID.

For Clubbing Rates, See First Page of Reading Matter.

MEDINA, MAR. 1, 1888.

Have the gates of death been opened unto thee? or hast thou seen the doors of the shadow of death? JOB 38: 17.

OUR subscription-list is now 7976, a gain of 244 within the last month.

PRICE LISTS RECEIVED.

WHAT is the matter with our supply-dealers? Did the drought of last season kill them out, or doesn't the business pay? So far we have received hardly a tenth of the price lists usually sent out this time of year.

BETTER NEWS FROM FRIEND W. Z. H.

JUST as we go to press, the following card comes to hand:

> DEAR SIR:—Mr. Hutchinson is fast improving now, and will soon have the Review out. MRS. W. Z. HUTCHINSON.

ARTHUR TODD.

THE following further particulars have been received from a son of the deceased, Arthur H. Todd:

> MR. ROOT:—My father, Arthur Todd, F. R. G. S. & A. K. C., of London, died in this city, of pneumonia, on Saturday, February 11, aged 46 years. He was the first man to import your comb foundation into France, and owned the first foundation machine in Algeria. He also was manager of the apiary at the Zoological Gardens in this city, and owned the bees on exhibition. ARTHUR H. TODD.
>
> Philadelphia, Pa., Feb. 17, 1888.

THE WANTS AND THE EXCHANGE DEPARTMENT.

SOME of our advertisers do not seem to understand that ad's intended for the above department must be bona-fide exchanges or wants. We can not insert any thing that names the price of an article for sale, neither can we give place to an advertisement that says, "Wanted, to exchange certain commodities for cash," naming the price; the exchange must be for something not money.

HONEY STATISTICS IN THE REGULAR CROP REPORTS.

JUST before we go to press, through the kindness of A. B. Mason we are informed that Statistician J. R. Dodge, of the Department of Agriculture, Washington, D. C., has promised to make an effort in gathering statistics relative to bee-keeping, to be published in the regular crop report at least once in a year, "providing that those engaged in the industry take sufficient interest in the matter to furnish the necessary data." GLEANINGS will lend its support to this enterprise in every way it can.

STATISTICS FOR GLEANINGS.

WE have gotten out some blank printed matter, to be sent to the bee-keepers in all parts of the country — the blanks to be filled out and returned. Our corps of honey-statisticians has not been fully made up yet, but we hope to get the thing going, so that we may be able to make some official announcements in our April 1st issue; that is, if our "machinery" works all right. We find in formulating a plan, that there are more difficulties in the way than we had anticipated; but we are going to make a hard pull, any way.

ALSIKE CLOVER FOR RE-SEEDING.

OUR friend M. M. Baldridge gives the following in the *Prairie Farmer*, in reference to a previous article:

> If that 12-acre piece of timothy and red clover were mine, I should lose no time to add thereto, the present winter or early the coming spring, two pounds of alsike clover-seed to the acre. The soil, being low and moist, would be just right for alsike clover; and on such soil, it would do much better than the common red. But alsike will do well on any soil, no matter how dry, which will produce good crops of red clover. Still, no attempt should be made to grow alsike on any soil, or in any latitude subject to drought, unless mixed with red clover. When thus mixed, alsike will always do just as well as red clover, and the alsike will add greatly to the value of the crop for either hay or pasture. The fact is, there is no clover equal, in my judgment, to alsike for hay or pasture for both sheep and cattle, and especially for milch cows. But I prefer always, when seeding land to alsike clover and the common red, to add thereto the usual quantity of timothy, so as to hold both clovers up and away from the ground. In this Fox-River Valley, the great dairy region of Illinois, hundreds of acres will be seeded the present year to a mixture of timothy, red clover, and alsike. The dairymen are just beginning to realize that alsike clover has most excellent qualities and is one of the best plants for dairy purposes ever introduced into the United States. M. M. BALDRIDGE.

THE SPIDER-PLANT SEED THAT WOULD NOT GERMINATE.

IN my editorial in our last issue, I supposed that, because we had waited a month for the seed to come up, kept it warm, given it sun, etc., as we did all our other honey-plant seeds, in our testing-boxes, that there was not any use of waiting any longer. During these bright days at the close of February, when the sun shines every day, the neglected and forgotten spider-plant seed took a start, and came up all right. Now, will not the friends who have bought seed of us, and complained that it would not grow, try again? Keep the seed moderately damp, in a warm place, and in the sun; and if it does not come up in four weeks, it probably will in eight. There has always been more or less trouble with the spider-plant seed. I do not believe I ever had a real good stand of it, except once, and I did not raise that. A market-gardener raised it for me in a cold-frame, and he produced the plants that gave us half an acre on our rich creek-bottom land.

OUR EUREKA WINDMILL.

WE are happy to say that this mill has run the entire winter, every day, when the wind blew; in fact, it has not been stopped once on account of weather. One reason why we wished to have it go all the while was, that we cut our ice from our carp-pond; and by allowing the windmill to keep flooding the ice with water from the spring, we have been enabled to fill a large ice-house with what we call "spring-water ice." You see, as fast as the water froze, the windmill pumped more on top of the ice, and then that froze. To my great astonishment, the tub by the side of the pond has not had a bit of ice on it this winter, not even around the edges—the warm spring water keeping the contents of the tub also above the freezing-point, even when the thermometer indicated five degrees below zero. When the wind did not blow, a small hole in the pipe in the well let the water from the tub run back into the well, so that, when the wind is not blowing, there is no water in the tub. In my first talk about windmills, I mentioned the fact that mills were on the market as low as $35.00 or $36.00; but I did not mean to convey the idea that *our* mill was purchased at this low price. The proper price can be ascertained by writing to the manufacturers, Smith & Woodard, Kalamazoo, Mich.

SPECIAL NOTICES.

JERSEY WAKEFIELD COLD-FRAME CABBAGE-PLANTS.

We have some beautiful ones, ready to ship. Price for 10, 10 cts.; 100, 80 cts.; per 1000, $6.00. If wanted by mail, add one-half to above prices.

THE GLOBE LAWN-MOWER.

If any of our readers are looking for a first-class lawn-mower at a low price they will do well to look at our advertisement on another page.

THE WIDTH OF SECTIONS WHEN WOOD OR TIN SEPARATORS ARE USED.

Our T super will take 28 sections $1\frac{15}{16}$ in. scant, or 32 sections $1\frac{1}{16}$ in., with *tin* separators; but when *wood* separators are used, your sections must be $1\frac{7}{8}$ in. or $1\frac{5}{8}$ in. wide. Please bear this in mind in making your orders.

THE SYRACUSE WHEELBARROW.

You will notice by our small adv't in another column that we have reduced the price of the large-sized wheelbarrow to $4.25. We quote special low prices in quantities of two or more. Don't be without one of these invaluable implements, when they cost so little.

CALIFORNIA HONEY AT 9 CTS. PER LB.

We have just secured about 1000 lbs. of fair quality California honey from R. Wilkin, which we offer in cases of 2 cans, 120 lbs., at 9c per lb. We will mail sample free on application. We still have plenty of choice basswood honey at 10 cts. per lb., and "gilt edge" basswood, or clover honey at 11 cts.

ALSIKE CLOVER AT $7.50 PER BUSHEL.

We are pleased to announce that the market on alsike seed will at present justify us in quoting the following reduced prices: 1 lb., 16c; per peck, $2.00; per half-bushel, $3.90; per bushel, $7.50; 2 bushels, $14 50. Bags free, in all cases. If you would secure this price, order early; for if we have the same experience as last year we shall have to advance again later.

ROOFING TIN, 18 × 22, FOR SIMPLICITY-HIVE COVERS, AND TIN SEPARATORS AT $8.00 PER BOX.

WHILE tin plate is advancing all around, we are pleased to tell you that we have a large stock of terne roofing tin, IC, 18×22, just right for Simplicity-hive covers, that we can offer at the old price of $8.00 per box, f. o. b. here. At present price of 14×20 coke, this is the cheapest tin to buy for separators, as each sheet makes 6 regular Simplicity wide-frame separators. Price, less than a box, will be 9c per sheet, or 8c in lots of 10 or more sheets.

PILES OF GOODS READY CRATED TO FILL ORDERS.

The experience of last year, when we were so behind in orders, made us resolve that we wouldn't get caught that way again. Accordingly, we have been "stocking up" ever since last season's orders dropped off, and we are now running an extra force of hands. We have great piles of hive-stuff ready crated, and, in a good many cases, we simply mark the address on the box, and the order is filled, so far as we are concerned. The packers say it is a pleasure to fill orders with lots of goods ready boxed. With very few exceptions goods go off immediately.

NOW IS YOUR TIME! DON'T WAIT!
NO. 1 POPLAR SECTIONS,
$3.50 per 1000. Special rates on 5000 or more. Samples free, and price list of Bees, Hives, Frames, Crates, Supers, Fdn., etc. I can suit you.
H. P. LANGDON, East Constable, Franklin Co., N. Y.

BEE-KEEPERS' SUPPLIES.
HIVES, FRAMES, CASES, SECTIONS, COMB FOUNDATION, ETC.
Send your address for FREE CIRCULAR to
REYNOLDS BROS.,
5tfdb **Williamsburg, Ind.**

GARDEN SEEDS

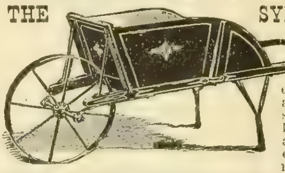
From one of the most extensive seed-growers in the United States. We have arranged for a large amount of Garden Seeds, just such as every one having a garden would buy, at a wonderful reduction, in order to advertise his seeds; and in order to place the

BEE-KEEPERS' ADVANCE
In Your Hands we OFFER
a box of 25 packets of these choice Garden Seeds and the ADVANCE one year, and your name placed in the Bee-keepers' Reference Book, described in Feb. GLEANINGS, for $1.00. We guarantee these seeds to give entire satisfaction. They would cost at retail $1.75. The seeds will be sent by mail, postpaid. Address
J. B. MASON & SONS.
Mechanic Falls, Me.

FOR SALE **SEED Potatoes**—Beauty of Hebron; a few Early Ohio; **50 cts.** a peck; **$1 50** per bush. **H. W. McBrid**, Blair, Neb,

Apiary and Fruit-farm for sale. $12\frac{3}{4}$ acres best land; house, barn, stables, etc.; good market for all that can be produced. Address Box 30, Chatham Center, N. Y. 5 6d

THE SYRACUSE BARROW.



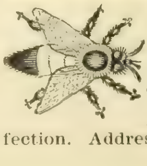
Strongest and neatest barrow made for gardeners, bee-keepers, merchants' delivery, and general use. Has steel wheel, axle, and legs; steel springs with adjustable bearings. Elegantly painted and varnished. Will carry 500 lbs. Two sizes, weighing 35 and 40 lbs. each. Price **$4** and **$4.25.** Liberal discount to dealers. **A. I. ROOT, Medina, O.**

KENWARD-HALL APIARY
LIVING PRICES.
We are ready to mail as soon as suitable weather North will allow,
300 TESTED ITALIAN QUEENS,
AT
ONE DOLLAR EACH.
All reared in Oct. and Nov., 1887, from imported mothers.
Untested Queens in March and April, 75c each; per dozen, $9 00.
ORDERS FILLED PROMPTLY BY RETURN MAIL.
Special rates to dealers. Write for Price List.
J. W. K. SHAW & CO.,
(Iberia Parish.) **LOREAUVILLE, LA.**

1872. **ALL MY ORDERS FOR 1887** were filled without one word of complaint; and the progeny of my queens was pronounced by some to be the finest they ever saw. I am now booking orders, to be filled as soon as weather permits. **1888.**

One untested queen - - - - - - -	$ 80
One tested " - - - - - - -	1 00
One selected " - - - - - - -	1 50

Safe arrival and satisfaction guaranteed.
Send for price list. **C. M. HICKS,**
Fairview, Wash Co., Md.



4 YOU BUY
your supplies for 1888, send for my 32-page illustrated Catalogue, describing my new reversible-frame hive and T super. They are perfection. Address **E. S. ARMSTRONG,**
JERSEYVILLE, ILLS.

PURE ITALIAN BEES

In best hives, double-walled, in winter; 8 frames, 12¼x12¼ in. each, at $5.00 per colony; or same in light strong shipping-boxes, 75 cts. less. Discount on large lots. **DR. G. W. YOUNG,**
3-5-7d **Lexington, Mo.**

---

2 SIMPLICITY B-hives, 2 covers, 10 brood-frames, 7 wide frames, and 56 one-piece 1-lb. sections, all in flat, $1.10. Leconte, Kieffer's Hybrid, and Bartlett pear-trees, 20 cts. each; 13 White-Leghorn chicken eggs, 50 cts.
3-5-7d T. A. GUNN, Tullahoma, Tenn.

HEADQUARTERS IN THE WEST

FOR THE MANUFACTURE AND SALE OF

Bee-Keepers' Supplies.

CHAFF AND SIMPLICITY HIVES FURNISHED AT A GREAT REDUCTION IN PRICE.

Nice Sections and Foundation, Specialties. A full line of Supplies always on hand. Write for our new Price List. Cash paid for Beeswax. 16tfdb

A. F. Stauffer, Sterling, Ill.

NEW HIVE

CIRCULAR NOW READY.

ADDRESS 3tfdb

JAMES HEDDON, Dowagiac, Mich.

WANTED.—The bee-keepers in vicinity of N. Y. City, to buy the **Van Deusen Hive-Clamp** from me (I keep a stock on hand), at regular manufacturer's prices. T. O. PEET,
3d 27 Park Row, N. Y. City.

STRAWBERRIES, RASPBERRIES, BLACKBERRIES, CURRANTS, AND GRAPES.

Plants at one-half the usual price. All stock warranted. Good references. I can ship plants 3000 miles, so as to reach you in good shape. Give me a trial order. Send postal card and get prices.

EZRA G. SMITH,
3-5d **Manchester, Ontario Co., N. Y.**

ITALIAN QUEENS BEE-HIVES,

T-TIN CASES, SECTIONS, METAL CORNERS,

Honey-Extractors, and Fruit-Boxes.

3tfd *SEND FOR PRICE LIST.*

B. J. MILLER & CO., - Nappanee, Ind.

New Orleans Apiary.

I will sell my entire apiary of 350 colonies of Italian bees, in good Langstroth hives, cheap, or any number of colonies, to suit purchaser. Unsurpassed facilities for shipping by river or railroad. Correspondence solicited. Address
4tfdb **J. W. WINDER, New Orleans, La.**

HOW TO RAISE COMB HONEY. See Foster's advertisement on another page. 4-15db

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WANTED.—To exchange pure P. R. cockerels, or eggs from prize-winning stock, for alsike clover-seed or ferrets. Eggs,$2.00 for 13 or $3.00 for 30.
45d B. D. SIDWELL, Flushing, Belmont Co., O.

FREE! FREE! FREE!

Upon application. Our 28th Annual Price List. A full line of

BEE-KEEPERS' SUPPLIES.

CHOICE COMB FOUNDATION AND WHITE-POPLAR SECTIONS A SPECIALTY.

100 COLONIES OF CHOICE ITALIAN BEES

for sale cheap. Also NUCLEUS COLONIES and QUEENS. Orders booked now. Address

WM. W. CARY & CO.,
3tfdb **Colerain, Franklin Co., Mass.**
Successors to WM. W. CARY. (Please mention GLEANINGS.)

WE HANDLE THE BEST SUPPLIES

OF ALL MANUFACTURERS.

We also make the best smoker on the market. All dealers should handle it. Send for wholesale list. It should be in every apiary; let every bee-keeper send for my illustrated catalogue, free. All implements used in an apiary, sold at reasonable rates. Beeswax bought at GLEANINGS quotations.
3-10db **W. E. CLARK, Oriskany, N. Y.**

Oliver Foster, of Iowa.

Italian bees, 60 cts. per lb. in July, to $1.00 in April. Pkgs. with queens, brood, etc., cheap. *No foul brood near.*

BEE SUPPLIES.—Best sections, cases, and hives. Catalogue free. Send 5 one-cent stamps for pamphlet, "HOW TO RAISE COMB HONEY,"—chuck full of practical information "in a nutshell."
4-15db Address OLIVER FOSTER, Mt. Vernon, Ia.

WANTED.—To exchange 125 P. R. fowls. Have bred carefully for five years. Am offering fine chicks for $1.00 each; per pair, $1.75. Eggs for hatching, 75c per 14. Will satisfy you. 3tfdb
MRS. C. E. HATCH, Kentland, Newton Co., Ind.

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50 PEKIN DUCKS for exchange or sale. Bronze Turkeys and Laced Wyandottes, and 7 other different varieties of pure-bred fowls. Eggs, $1.50 for 13. Turkeys' eggs, $2.50 for 11. Satisfaction guaranteed.
4-7db B. J. PURCELL, Box 47, Concord, Ky.

What is the Matter?

I wish to inform the readers of GLEANINGS that I am better prepared the coming summer to furnish bees by the pound, Italian Queens, Nuclei, Comb Foundation, Hives, Smokers, Honey-Extractors, Honey-Knives, and every thing needed in the bee-line. Send for my new Price List for 1888, now out.

R. E. SMITH,
(Formerly Smith & Jackson). **P. O. Box 72,**
4-5d **Tilbury Centre, Ont., Can.**

DADANT'S FOUNDATION FACTORY, WHOLESALE AND RETAIL. See advertisement in another column

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FREE! FREE! FREE!

Don't fail to send your address on a *postal card* for the March number of the **American Apiculturist.** 'Tis filled with essays on "PRACTICAL HINTS TO BEE-KEEPERS," from the pens of the best-known writers on apiculture. SENT FREE.
Address *APICULTURIST, Wenham, Mass.*
4tfdb

LOOK HERE!

A complete hive for comb honey, for only $1.30. Planer-sawed, V-groove sections a specialty. Price list free. **J. M. KINZIE & CO.,**
17tfd **Rochester, Oakland Co., Mich.**

NEARLY THIRTY TONS
—OF—
DADANT'S FOUNDATION
SOLD IN 1887.

It is kept for sale by Messrs. T. G. Newman & Son, Chicago, Ill.; C. F. Muth, Cincinnati, O.; Jas. Heddon, Dowagiac, Mich.; F. L. Dougherty, Indianapolis, Ind.; B. J. Miller & Co., Nappanee, Ind.; E. S. Armstrong, Jerseyville, Illinois; Arthur Todd, 2122 North Front Street, Phil'a, Pa.; E. Kretchmer, Coburg, Iowa; P. L. Viallon, Bayou Goula, La., M. J. Dickason, Hiawatha, Kansas; J. W. Porter, Charlottesville, Albemarle Co., Va.; E. R. Newcomb, Pleasant Valley, Dutchess Co., N. Y.; D. A. Fuller, Cherry Valley, Ill.; J. B. Mason & Sons, Mechanic Falls, Maine; G. L. Tinker, New Philadelphia, O., Jos. Nysewander, Des Moines, Ia.; C. H. Green, Waukesha, Wis.; G. B. Lewis & Co., Watertown, Wis.; J. Mattoon, and W. J. Stratton, Atwater, O., Oliver Foster, Mt. Vernon, Iowa; C. Hertel, Freeburg, Ill.; Geo. E. Hilton, Fremont, Mich.; J. M. Clark & Co., 1409 15th St., Denver, Colo.; Goodell & Woodworth Mfg. Co., Rock Falls, Ill.; J. A. Roberts, Edgar, Neb., and numerous other dealers.

Write for *free* samples, and price list of bee supplies. We *guarantee every inch* of our foundation *equal to sample in every respect*. Every one who buys it is pleased with it.

CHAS. DADANT & SON,
3btfd **Hamilton, Hancock Co., Illinois.**

Costs less than 2 cents per week.

THE CANADIAN BEE JOURNAL.
THE FIRST DOLLAR WEEKLY IN THE WORLD.
THE D. A. JONES CO., PUBLISHERS, BEETON, ONTARIO, CAN.

D. A. Jones is its editor, and this fact is a guarantee of its worth. It is thoroughly practical and contains weekly excellent articles from leading beekeepers in the United States and Canada. Fifty-two numbers make a volume of 1040 pages. American currency and stamps at par. Samples free.

HEADQUARTERS
For Cards and Stationery for Bee-keepers and Others.

Besides our beautiful eight-color chromo card, we have other neat designs, also a fine selection of fancy address cards, for old and young, for business and amusement. Also two and three letter monograms, all at low prices. **See Here,** 50 fancy printed cards, 15 cts.; 300 envelopes, 300 letter-heads, printed, $1. Package 25 assorted cards, 10 cts. Neat box of cards and honey candies, 15 cts. Circulars free. Address J. H. MARTIN, Hartford, N. Y. 20tfdb

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HERE I COME

To say that E. Baer, of Dixon, Ill., has sold out his supply business to the Goodell & Woodworth Mfg. Co., who will sell V-groove basswood sections at from $2.75 to $4.00 per M. Other supplies correspondingly low. Samples and circular free. Address the **GOODELL & WOODWORTH MFG. CO.,**
3tfdb **ROCK FALLS, WHITESIDE CO., ILL.**

SEEDS. Pkt. new kind Tomato Seed, very choice, 3c. Catalogue free. F. B. MILLS, Thorn Hill, N. Y. 3-4-5d

---

BEES, Queens, Hives, Given Comb Foundation, Apiarian Supplies, German Carp, Small-fruit Plants. Send for catalogue free. E. T. Flanagan, Belleville, Ills. 1-24db.

FOR SALE.

DESIRING to go to the Pacific coast on account of my health, I offer my place, with two apiaries of 115 colonies of bees, with every thing needed to run them. G. A. WRIGHT,
3tfdb Glenwood, Susq. Co., Pa.

G. B. LEWIS & CO.

WE make the best Bee-Hives, the best Sections, the best Shipping-Crates, the best Frames, &c.
☞ We sell them at the Lowest Prices.
Write for free Illustrated Catalogue.

G. B. LEWIS & CO.,
1tfdb WATERTOWN, WIS.

Green Wire Cloth,
FOR
Window Screens and Shipping Bees,
AT
GREATLY REDUCED PRICES.

The following lot of wire cloth is a job lot of remnants, and full rolls direct from the factory, that are **FIRST QUALITY**, and the pieces are of such variety of size as to furnish any thing you want. Price 1¾ cts. per sq. foot, for full pieces. If we have to cut the size you want, 2 cts. per sq. ft.

When you order a piece, and somebody else has got it ahead of you, we will substitute a piece the nearest in size to the one ordered, unless you specify in your order that you do not want us to substitute. The figures on the left indicate the width.

8	10 rolls, 67 sq. ft. each: 1 each of 66, 65, 64, 63, 63, 62, 54, 40, 27, 24, 22, and 4 sq. ft.
12	34 rolls of 100 sq. ft. each; 3 of 102 sq. ft.; 3 of 98, and 1 each of 97, 92, 75, 52, 48, 44, 43, and 28 sq. ft.
14	1 roll 14 sq. ft.
16	8 rolls of 133 sq. ft.; and 1 each of 132, 130, 130, 128, and 105 sq. ft.
18	6 rolls of 147 sq. ft., and 1 each of 153, 150, 148, 145, 145, 69, and 24 sq. ft.
22	1 roll each of 55, 55, and 16 sq. ft.
24	22 rolls of 200 sq. ft. each, and 1 each of 280, 66, 66, 52, 50, 44, 36, 36, 32, 30, 24, 20, and 8 sq. ft.
26	99 rolls of 216 sq. ft. each, and 1 each of 215, 210, and 204 sq. ft.
28	49 rolls of 233; 6 of 224; 1 of 257, 240, 234, 219, and 214 sq. ft.
32	1 roll of 266, and one of 275 sq. ft.
34	18 rolls of 283 sq. ft. 1 each of 142, 142, 133, 130, 9, and 9 sq. ft.
36	6 rolls of 300 sq. ft.
38	21 rolls of 316 sq. ft., and 1 each of 633 and 300 sq. ft.

A. I. ROOT, Medina, O.

JOB LOT OF POULTRY-NETTING.
Small Pieces at same Rate as full Rolls—1 ct. per Square Foot.

Two or more pieces, 5 per cent off; ten or more, 10 per cent discount.

You will notice in this lot some with heavier wire than No. 19, and some with smaller mesh than two-inch. Both of these are worth more at regular prices than two-inch No. 19; but as it is a job lot we put it all in at the same price.

Inches wide.	Inch mesh.	No. of Wire.	By dividing the number of square feet in this column by the width in the first column, you can ascertain the length of each piece. These figures give the number of square feet in each piece.
6	2	18	10.
12	2	19	91, 85, 50, 41, 25, 25, 10.
12	2	18	70, 15, 13, 13, 1¼ mesh, No. 18 wire, 24.
24	1½	20	120, 120.
24	1½	19	28, 30, 1¼-inch mesh, 50.
24	2	19	200, 170, 140, 130, 120, 100, 100, 88, 82, 64, 56, 32.
24	2	18	226, 224, 58, 58, 56.
30	1½	19	41, 32, No. 18 wire, 90, 40.
30	1¼	19	17.
30	2	19	250, 237, 167, 125, 125, 122, 45, No. 18, 150.
36	2	19	195, 126, 33, 1½ in., No. 20 wire, 348, 312.
42	2	18	203, No. 18, 1½ mesh, 189.
54	2	19	450, No. 18 wire, 324.
60	2	19	595, 490, 445, 335, 330, 325, 285, 280, 240, 225, 220, 210, 180, 165, 160, 140, 130, 80.
60	2	18	410, 335, No. 17 wire, 195.
72	1½	19	438, 312, No. 18 wire, 228.
72	2	19	750, 720, 690, 672, 636, 618, 558, 510, 438, 420, 270, 252, 252, 222, 192, 168, 168, 162, 162, 156, 156, 156, 126, 120, 66, 48.

We know of nothing nicer or better for a trellis for creeping vines than the above netting. The 12 to 24 inch is just the thing to train up green peas, fastening the netting to stakes by means of staples. If the stakes are set in substantially, one each 12 or 15 feet will answer. When the peas are stripped off the stakes, netting and all can be rolled up and laid away until another season. A. I. ROOT, MEDINA, O.

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PRICE LISTS RECEIVED.

In the last issue I stated that, for some reason or other, the usual number of price lists for this time of year had not been received. The result is a deluge, and we append them, so far as received, below:

Wm. H. Bright, Mazeppa, Minn.; a 24-page circular of apiarian supplies.

Aaron Hunt, Gordon, Ohio; a 28-page price list of general supplies.

Jos. E. Shaver, Friedens, Va.; a 26-page price list of bee-supplies.

G. B. Lewis & Co., Watertown, Wis.; a 30-page price list of bee-supplies.

R. B. Leahy, Higginsville, Mo.; a 12-page catalogue of bee-keeping supplies.

C. F. Muth & Son, Cincinnati; a 40-page price list of bee-supplies, honey, etc.

A. Wortman, Seafield, Ind.; a 20-page price list of bee supplies and poultry stock.

Jno. Nebel & Son, High Hill, Mo.; a 10-page circular of bee-keepers' supplies.

H. P. Langdon, East Constable, N. Y.; a 4-page circular of bees, queens, and supplies.

D. G. Edmiston, Adrian, Mich.; a 10-page list of trees, small fruits, and bee-supplies.

C. P. Bish, Saint Joe Station, Pa.; a 24-page catalogue of useful implements for the apiary.

Martin & Macy, North Manchester, Ind.; a 24-page catalogue of bee-supplies and poultry.

Wm. E. Gould, Fremont, Mich.; a 14-page catalogue of bees, queens, and general supplies.

Smith & Smith, Kenton, O.; a 26-page circular, large size, of general bee-keepers' supplies.

F. A. Salisbury, Syracuse, N. Y.; an advertising card of bees, queens, and apiarian supplies.

Wm. Hoyt, Ripley, Me.; a 20-page pamphlet, large size, entitled, "The Bee-keepers' Advertiser."

Thos. B. Blow, Herts, Welwyn, England; a 65-page circular of bees, honey, and bee-keepers' supplies.

F. A. Eaton, Bluffton, O.; a 12-page circular of bees, queens, and poultry. Specialty, Eaton's section-case.

G. M. Doolittle, Borodino, N. Y.; a 14-page circular, large size, of bees and queens; specialty, queens raised under the natural swarming impulse.

Edward R. Newcomb, Pleasant Valley, N. Y.; a 40-page catalogue of bee-supplies; specialties, sections and the Stanley automatic honey-extractor. As was the case last year, Mr. Newcomb's catalogue presents the handsomest appearance of any received.

Chas. Dadant & Son, Hamilton, Ill.; a 4-page catalogue of foundation, extracted honey, and a few supplies. Messrs. Dadant & Son guarantee that every inch of fdn. sent out by them will be equal to the sample sent with circular. This promise they fulfill to the letter, and they ought to have a big trade in fdn. for living up so well to their agreements.

We have just printed price lists for the following parties:
F. T. Hall, Lochiel, Dunn Co., Wis., 6 pages, bee-supplies.
Albert Mason, Peru, Clinton Co., N. Y., 12 pages, bee-supplies.
L. D. Worth, Reading Center, N. Y., leaflet, hives, etc.
L. L. Hearn, Frenchville, W. Va., 6 pages, Italian queens.
Mrs. J. N. Heater, Columbus, Neb., supplies (in press).
G. E. Hilton, Fremont, Mich., essay on raising honey.

CONVENTION NOTICES.

The first meeting, for 1888, of the Fayette Co. Bee-keepers' Association will be held at the residence of J. W. Gillispie, Washington C. H., on Thursday, April 26th, at 10 A.M. A full attendance is desired, as the annual election of officers takes place.

S. R. MORRIS, Sec'y.

The tenth annual meeting of the Texas State Bee-keepers' Association will be held at the bee-yards of Vice-president W. R. Graham, Greenville, Hunt Co., Texas, May 2d and 3d, 1888. A leading feature of the convention will be criticisms upon subjects that have gone through the bee-journals. All Texas and Arkansas bee-keepers are expected to be present. All are cordially invited. No hotel-bills to pay. B. F. CARROLL, Sec'y.

SPECIAL NOTICES.

A BARGAIN IN BROOD FDN.

In trimming our brood fdn. to regular-sized sheets we have more or less short pieces, from 8 to 9 in. wide and 12 to 15 in. long. We will trim these to an even size within these measurements, in lots of five lbs. or more, when we have them on hand, at 3 cts. per lb. less than regular price; 5 lbs. would be worth $1.85; 10 lbs., $3.60.

HONEY-TUMBLERS.

We have at length secured some honey-tumblers of the right size to hold 1 lb. of honey as well as ½ and ¼ lb. They are a handsome shape, and have a bunch of grapes stamped on the cover. Moreover, the ½ and 1 lb. sizes may be nested to reduce the expense of packages. Prices are as follows:

1 lb.	4c each;	10, 35c;	100, $3.25;	200, $5.80;	1000, $27.50
½ lb.	3c "	10, 30c;	100. 2.90;	250, 6.15;	1000, 23.50
½&1 lb. nest'd	7c "	10, 65c;	100, 5.80;	200, 11.65;	1000, 49.50
¼ lb.	3c "	10, 28c;	100, 2.65;	250, 5.65;	1000, 21.00

CARPET-SWEEPERS.

We call the attention of our readers to our carpet-sweeper advertisement on another page. When you are ordering your supplies, don't forget the "gude wife." You can lighten her burdens very much by adding a good carpet-sweeper to her outfit of household conveniences. Notice the reduction in quantity. Get your neighbors to club with you and thus save something all around, and bless the neighborhood.

MAPLE SUGAR AND SYRUP.

As we go to press, the farmers are just opening up their sugar-camps, and we expect soon to have a good supply of very nice maple sugar at 11, 10, and 9 cts. per lb., according to quality. In lots of 50 lbs., ½ ct. per lb. less. In bbls. of about 300 lbs., 1 cent per lb. less. Choice maple syrup at $1.10 per gallon; $10.00 for 10 gallons, either in 1 or 5 gallon cans. We still have some of last years's syrup yet on hand, first class, that we will sell at 10 cts. per gallon less than the above. See our ad't on another page.

PEAVINE, OR MAMMOTH RED CLOVER.

As a good many of the bee-friends seem to be still in the dark in regard to the peculiar merits of this kind of clover, we will, this spring, do as we did two years ago—furnish a small sample package with a descriptive circular in regard to the plant, prices, etc., free of charge. Now, instead of asking questions about peavine clover, send for a free sample of the seed. You can do this on a postal card; then if you want to ask further questions in regard to it, send them on. The price of the seed this spring will be as follows: One pound, 12 cts.; peck, $1.40; half bushel, $2.60; bushel, $5.00. If wanted by mail, add 18 cts. per lb. for bag and postage.

DOVETAILED SECTIONS
SEND FOR SAMPLE AND PRICES.
NEWTON & COATS,
Poolville, Madison Co., N. Y.

26 EGGS, $1.50; 13, $1.00. Todd strain of Brown Leghorns. 6d A. F. BRIGHT, Mazeppa, Minn.

WANTED. To sell 150 bushels nice white corn for seed. 150 bu. raised on less than 3 acres in 1887. Packet, 15c; peck, $1.25; bu. $4.00. Will take some Italian bees in exchange. Less than 100 ears make a bushel. Plant late as June.
6d S. J. NASH, Aldrich, Polk Co., Mo.

WANTED. To sell 17 colonies of hybrid bees, S. hives, at Somerset, Ky. Make offers.
6d Address JAS. H. COLVILLE, Goshen, O.

BEES IN APRIL, 5 LBS., $4.00.
Italian queens, mismated, 50c. Make money order payable at Clifton. Safe arrival guaranteed.
6d S. H. COLWICK, Norse, Bosque Co. Tex.

DADANT'S FOUNDATION FACTORY, WHOLESALE AND RETAIL. See advertisement in another column. 3btfd

FREE! FREE! FREE!

Upon application. Our 28th Annual Price List. A full line of

BEE-KEEPERS' SUPPLIES.

CHOICE COMB FOUNDATION AND WHITE-POPLAR SECTIONS A SPECIALTY.

100 COLONIES OF CHOICE ITALIAN BEES for sale cheap. Also NUCLEUS COLONIES and QUEENS. Orders booked now. Address

WM. W. CARY & CO.,
3tfdb **Colerain, Franklin Co., Mass.**
Successors to WM. W. CARY. Please mention GLEANINGS.

WE HANDLE THE BEST SUPPLIES

OF ALL MANUFACTURERS.

We also make the best smoker on the market. All dealers should handle it. Send for wholesale list. It should be in every apiary; let every bee-keeper send for my illustrated catalogue, free. All implements used in an apiary, sold at reasonable rates. Beeswax bought at GLEANINGS quotations.
3-10db **W. E. CLARK, Oriskany, N. Y.**

Oliver Foster, of Iowa.

Italian bees, 60 cts. per lb. in July, to $1.00 in April. Pkgs. with queens, brood, etc., cheap. *No foul brood near.*

BEE SUPPLIES.—Best sections, cases, and hives. Catalogue free. Send 5 one-cent stamps for pamphlet, "HOW TO RAISE COMB HONEY,"—chuck full of practical information "in a nutshell."
4-15db Address OLIVER FOSTER, Mt. Vernon, Ia.

---

50 PEKIN DUCKS for exchange or sale. Bronze Turkeys and Laced Wyandottes, and 7 other different varieties of pure-bred fowls. Eggs, $1.50 for 13. Turkeys' eggs, $2.50 for 11. Satisfaction guaranteed.
4-7db B. J. PURCELL, Box 47, Concord, Ky.

DADANT'S FOUNDATION FACTORY, WHOLESALE AND RETAIL. See advertisement in another column

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FREE! FREE! FREE!

Don't fail to send your address on a *postal card* for the March number of the **American Apiculturist.** 'Tis filled with essays on "PRACTICAL HINTS TO BEE-KEEPERS," from the pens of the best-known writers on apiculture. SENT FREE.
Address *APICULTURIST, Wenham, Mass.*
4tfdb

FOR SALE.

Italian Queens and Bees by the Colony, Nucleus, and Pound. Dealer in Bee-keepers' supplies. Address
OTTO KLEINOW,
5tfdb (Opp. Fort Wayne Gate), Detroit, Mich.

APIARY-:-FOR-:-SALE.

45 STOCKS OF BEES.

Italians, Hybrids, and Blacks, in Chaff and Simp. Hives—10 chaff, 5 one-story chaff; the rest in Simp. hives; one honey-extractor (Novice), as good as new; wide frames and Moore crates for all the hives. A good bargain for some one. The bees must go. My work is away from home, and keeps me from 7 A. M. till 8 P. M. Write for price. (My bees are within 5 minutes' walk of depot. Come and see.)

ELBERT GREELEY,
5-6-7d **Lorain, Lorain Co., O.**

Apiary and Fruit-farm for sale. 12¾ acres best land; house, barn, stables, etc.; good market for all that can be produced. Address Box 30, Chatham Center, N. Y. 5-6d

---

HEADQUARTERS IN THE WEST

FOR THE MANUFACTURE AND SALE OF

Bee-Keepers' Supplies.

CHAFF AND SIMPLICITY HIVES FURNISHED AT A GREAT REDUCTION IN PRICE.

Nice Sections and Foundation, Specialties. A full line of Supplies always on hand. Write for our new Price List. Cash paid for Beeswax. 16tfdb

A. F. Stauffer, Sterling, Ill.

NEW HIVE

CIRCULAR NOW READY.

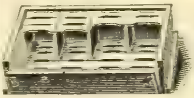
ADDRESS 3tfdb

JAMES HEDDON, Dowagiac, Mich.

New Orleans Apiary.

I will breed and mail guaranteed pure Italian queen-bees from the best stock for business, for one dollar each, the coming season. Orders solicited, and queens mailed upon the receipt of order. I will also sell 350 colonies of Italian bees in Langstroth hives, cheap, or any number of colonies to suit purchaser. I can ship by river, railroad, or steamship to any point. Address
6tfdb **J. W. WINDER, New Orleans, La.**

FOUNDATION, 10-lb. lots or more, 35 cts. per lb.
5tfdb **JAS. McNEIL, Hudson, N. Y.**



Eaton's Improved
SECTION CASE.
BEES AND QUEENS. Send for free catalogue. Address
FRANK A. EATON,
5-10db **Bluffton, Ohio.**

LOOK HERE! 20 fresh eggs in season, for only $1.00; also agent for thoroughbred Cattle, Swine, and Sheep, of fine pedigree, and Silver live-stock powder. Write for what you want. Orders filled in rotation. 5-8db

Fillmore Decker, New Florence, West'd Co., Pa.,
Breeder of Pure Brown Leghorn Fowls.

BEES FOR SALE

COLONIES,
Nuclei and Queens
At Living Rates.

Send for Circular and Price List to
C. C. VAUGHN,
5tfdb **Columbia, Tenn.**

MUTH'S HONEY-EXTRACTOR,

SQUARE GLASS HONEY-JARS,
TIN BUCKETS, BEE-HIVES,
HONEY-SECTIONS, &c., &c.
PERFECTION COLD-BLAST SMOKERS.

Apply to CHAS. F. MUTH & SON,
CINCINNATI, O.

P. S.—Send 10-cent stamp for "Practical Hints to Bee-Keepers." 1tfdb

Wants or Exchange Department.

Notices will be inserted under this head at one-half our usual rates. All ad's intended for this department must not exceed 5 lines, and you must SAY you want your ad. in this department, or we will not be responsible for any error. You can have the notice as many lines as you please; but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale can not be inserted under this head. For such our regular rates of 20 cts. a line will be charged, and they will be put with the regular advertisements.

WANTED.—To exchange 1000 tin separators, 15½x 4¼ in., valued at 80c per 100, for currant-plants.
JAS. HALLENBECK, Altamont, Albany Co., N. Y.

WANTED.—To exchange bees in Langstroth or Simplicity hives, for disk-harrow and band seed-drill. I also want seed-catalogues. Address
1tfdb W. H. PUTNAM, River Falls, Wis.

WANTED.—To exchange a Scotch Collie pup, nine months old (female), for bees or Simplicity hives.
J. B. LYON, M. D.,
6d Sand Run, Hocking Co., Ohio.

WANTED.—A bee-keeper to take charge of my apiary, on shares. ROBERT BLACKLOCK,
4-8db Kilgore, Boyd Co., Ky.

WANTED.—Correspondence on apples, potatoes, seed-potatoes, cabbage, onions, small fruit, and fruit and produce generally. Consignments solicited. Will quote market at any time.
EARLE CLICKENGER,
4tfdb General Commission Merchant,
117 South 4th St., Columbus, O.

WANTED.—To exchange for any thing of a standard market value, full colonies of Italian bees on 8 L. or Simplicity frames, in shipping-boxes, at $4.00 per colony.
5tfdb W. A. SANDERS, Oak Bower, Hart Co., Ga.

WANTED.—To exchange bees, queens, Simp. hives, or other supplies, for small printing-press and outfit (self-inker and power press preferred), and a good type-writer. Describe fully what you have. J. M. JENKINS, Wetumpka, Ala.

WANTED.—To exchange bees and queens for a printing-press and outfit, or offers.
Circulars free. G. D. BLACK, Brandon, Iowa.

WANTED.—To exchange one first-class incubator, the "Perfect Hatcher," for bees or wax.
H. O. SALISBURY, Geddes, Onondaga Co., N. Y.

WANTED.—To work wax and exchange fdn. for bees, eggs of best strains of poultry, and strawberry-plants. C. H. MCFADDEN,
5-6-7d Clarksburg, Moniteau Co., Mo.

WANTED.—To exchange back volumes of GLEANINGS and *Am. Bee Journal*, as good as new, for alsike and Mammoth Red Clover, or pure Plymouth Rock or Brown Leghorn fowls, or Japanese or common buckwheat; also a part of the proceeds of an apiary, for a practical man to run it.
J. W. BARLOW, Belfast, Ia.

WANTED.—To exchange a Towmbly knitting-machine, with both fine and coarse plates, in first-class order, for bees or supplies. Address
6-7d J. GARDNER, Westville, Ind.

WANTED.—To exchange 3 Novice honey-knives, Cook's Manual, 7 upright show-cases, 16x26 in., double-barrel (English twist) shot-gun and case, and tested Italian queens, in June, for thoroughbred poultry and eggs. P. Rocks and W. and L. Wyandottes preferred. C. H. WATSON,
6-7d Newtown, Bucks Co., Pa.

WANTED.—To exchange first-class parlor organ (Mason & Hamlin), nearly new, for Italian bees.
J. FERRIS PATTON,
Morris Ave. and 163d St., New York city.

WANTED.—To exchange Italian queens for maple sugar. MISS A. M. TAYLOR,
6d Mulberry Grove, Bond Co., Ill., Box 77.

WANTED.—To exchange Quinby Chaff Hives, with 10 standing frames, one 4-frame honey-extractor, new, for beeswax, foundation, or offers.
MRS. OLIVER COLE.
6tfdb Sherburne, Chenango Co., N. Y.

WANTED.—To exchange a bicycle, 54-inch American Challenge, for bees and supplies. A bargain.
6-7d E. CARTER, 611 Hampton St., Bay City, Mich.

HOW TO RAISE COMB HONEY. See Foster's advertisement on another page. 4-15db

L. BRAHMAS, P. ROCKS, R. C. B. LEGHORNS, and PEKIN DUCKS; all strictly Pure-Bred. Eggs only $1.25 per setting; 2 settings, $2.00; safe arrival guaranteed. (Seven years' experience.)
6-8-10d *S. P. YODER, E. Lewistown, O.*

1884. TAR-HEEL APIARIES. 1888.

ABBOTT L. SWINSON,
PROPRIETOR,
Goldsboro, N. Carolina.

AMERICAN-ALBINO * AND * GOLDEN * ITALIANS.

Untested warranted queens, April to Oct., $1.00 each. Virgin queens, one-half the price of warranted queens. Extra selected virgin queens, 20 cts. each extra. Best choice breeding queens, $5.00 each. Nuclei, 75 cts. per each L. frame of brood. Bees, $1.00 per lb. Sample bees and drones, 10c. I breed the best and finest bees and queens to be had. There are allowed no queens in my apiaries, unless part of their workers show four bands. 6tfd

SMITH & SMITH.

WE HAVE ONE OF THE LARGEST

BEE-HIVE FACTORIES IN THE WORLD.

If you are interested in bees, send for our price list before *buying any supplies.*

GOOD GOODS AND FAIR PRICES.

SMITH & SMITH, (6tfdb) **KENTON, OHIO.**

ELLISON'S EARLY ITALIAN QUEENS

	April.	May.
1 untested queen - - - -	1 15	1 00
3 " " - - - -	3 00	2 50
1 tested " - - - -	2 50	2 00
3 " " - - - -	6 00	4 50

Many of the above will be reared in the height of the swarming season, and all will be nearly, if not quite as good as the best swarming queens. In every case satisfaction and safe arrival guaranteed.
W. J. ELLISON, Stateburg, Sumter Co., S. C.

FOR SALE CHEAP.

Root's 10-inch foundation-mill, nearly new, $12.50. Barnes combined sawing-machine, as good as new, $25.00. Cost $40.00. THOS. BALCOMB,
6d St. Charles, Mo.

ON 30 DAYS' TRIAL

THIS NEW

ELASTIC TRUSS

EGGLESTON'S
SENSIBLE TRUSS

Has a Pad different from all others, is cup shape, with Self-adjusting Ball in center, adapts itself to all positions of the body while the **ball** in the cup **presses back the intestines just as a person does with the finger.** With light pressure the Hernia is held securely day and night, and a radical cure certain. It is easy, durable and cheap. Sent by mail. Circulars free. EGGLESTON TRUSS CO., Chicago, Ill.

20-7db

HONEY COLUMN.

CITY MARKETS.

NEW YORK.—*Honey.*—Fancy white, 1-lb. sections, 14@15; same in 2-lb. sections, 12. Lower grades, 1@2 per lb. less. Buckwheat, 1-lb. sections, 10@10½; same in 2-lb. sections, 9@9½. Extracted, white, 7@7½; extracted, dark, 5½@6.

Mr. Root:—Please take note of above report. Regarding the condition of our market, we will state that the demand for comb honey has been very limited since the middle of December, and has now almost ceased. There is a large stock here, with shipments arriving occasionally, and quite a lot held yet by bee-keepers throughout the State. We have no doubt but that a large share must be carried over until next fall, as the season is now about closing. At the beginning of the season we advised bee-keepers to ship as early as possible, while there was a good demand at good prices, and honey could be disposed of readily. The first part of the season is the best, as the bulk of the business is done before January 1st. Up to that time we sold nearly 10,000 crates at good prices, and the shippers were well pleased with the returns. Toward the new year the demand slackens off, and prices generally decline; this we have noticed for the past number of years, whether the crop was large or small. Taking the present state of the market into consideration, we could not encourage further shipments, as we can not guarantee quick sales nor prices obtainable.

F. G. STROHMEYER & CO.,
Feb. 21. 122 Water St., N. Y.

CINCINNATI.—*Honey.*—There is a good demand for extracted honey in all shapes, from manufacturers as well as consumers. It brings 4½@9c on arrival. Demand is very slow for comb honey, of which there is more than the usual supply for the season, in our city. The best is held at 14@17c in the jobbing way, which is 3@4c less than comb honey brought last fall. *Beeswax* is in good demand, and brings 20@22c on arrival for good to choice yellow.

CHAS. F. MUTH & SON,
March 11. Cincinnati, O.

MILWAUKEE.—*Honey.* — Market is quiet, and the demand is not quite what it should be, and values may be quoted: Choice white 1-lb. sections, 17@18c; 2 lbs., 15@16; 3 lbs., 14. Dark and broken, not quotable. Extracted, white, in half-bbls. and kegs, 8½@9; in tin and pails, 9½@10; dark, half-bbls. and kegs, 5@7. *Beeswax.*—Nominal, 22@25.

A. V. BISHOP,
March 10. Milwaukee, Wis.

CHICAGO.—*Honey.*—Sales are light, and offerings are large. Prices range from 15@17c for best grades of 1-lb. sections; the larger-sized sections from 2@3c less. No demand for dark comb; extracted, 7@9c, according to color and style of package.

Beeswax.—23@25c. R. A. BURNETT,
March 9. 161 So. Water St., Chicago, Ill.

ALBANY.—*Honey.*—Market is slow, but no overstock or accumulation. Not enough buckwheat comb; too much medium clover. Extracted stock, light. Consignments solicited.

H. R. WRIGHT,
March 9. 328 Broadway, Albany, N. Y.

CLEVELAND.—*Honey.*—Our honey-market continues about the same, very dull. We are offering best white honey in 1-lb. sections at 15@16c.

A. C. KENDEL,
March 9. Cleveland, Ohio.

ST. LOUIS.—*Honey.*—There is no change in the honey-market. *Beeswax* is going a little better; 22c for prime; 25 for selected yellow on arrival.

W. B. WESTCOTT & CO.,
March 9. St. Louis, Mo.

COLUMBUS. — *Honey.*—Comb honey is very quiet at 15@18c; extracted honey, no change in price, and no demand. *Beeswax.*—None to speak of.

EARLE CLICKENGER,
March 9. 117 South 4th St., Columbus, Ohio.

BOSTON.—*Honey.*—We quote: 1-lb. sections, white, 16@17; 2-lbs., 14@16. *Beeswax.*—25c. Sales slow.

BLAKE & RIPLEY,
March 10. 57 Chatham St., Boston, Mass.

NEW YORK.—*Honey.*—The honey-market continues dull, and prices are declining. We quote fancy white comb honey, 1-lb. sections, 14@17; 2 lbs., 12@14; buckwheat, 1-lb., 10@11; 2 lbs., 9@10. *Beeswax*, 22@24.

MCCAUL & HILDRETH BROS.,
March 10. 28 & 30 West Broadway, N. Y.

KANSAS CITY.—*Honey.*—Market is weak and lower; 1c per lb. off. This market is well supplied.

CLEMONS, CLOON & CO.,
March 10. Kansas City, Mo.

ST. LOUIS.—*Honey.*—Market bare. Extracted and strained, in bbls., 6½@7½. Comb, slow, at 17@19. *Beeswax.*—Prime, 22c.

D. G. TUTT & CO.,
Mar. 10. 206 N. Commercial St., St. Louis, Mo.

DETROIT.—*Honey.*—Market for comb honey is dull, with lower prices. Best white in 1-lb. sections, 16@17c. Extracted, 9@10c. *Beeswax.*—22@23c.

Bell Branch, Mich., Mar. 10. M. H. HUNT.

FOR SALE.—About 200 lbs. buckwheat honey, in 5x5x2 boxes, glass; quality, etc., fair to good.

EDWARD B. BEEBEE, Oneida, Mad. Co., N. Y.

IMPORTED CARNIOLAN QUEENS.

I have 11 **FINEST SELECTED QUEENS,** bred by Mr. Benton in Carniola, August and September, 1887, now in my apiary, ready to ship as soon as weather will permit; never saw foul brood. One queen by mail, $8. Queen, with frame of brood and bees, by express, $10. You pay express charges. Safe arrival always guaranteed.

4-6d S. W. MORRISON, Oxford, Chester Co., Pa.

N. B. — Am booking orders now for untested queens in May.

1888. 1888.

Pure Italian Bees and Queens

for sale in Full Colonies or Nuclei. Five L. frame nuclei a specialty. My queens and bees possess all the good qualities of the most desirable honey-bee. Send for prices.

WM. LITTLE,
Marissa, Ill.

D. E. MATER,

MANUFACTURER OF

BEE-HIVES AND SECTIONS.

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Austinville, Bradford Co., Pa.

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W. D. WRIGHT,
6d Knowersville, Albany Co., N. Y.

GLEANINGS IN BEE CULTURE.

DEVOTED TO BEES, HONEY & HOME INTERESTS.

F. A. Whiting

Vol. XVI. MAR. 15, 1888. **No. 6.**

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THE DRONE.

OUR POOR SLANDERED DRONE ASKS FOR HIS DAY IN COURT.

VIRGIL, who was a great poet, but not enough of a practical bee-keeper to know a laying from a virgin queen, was the first writer of much note to have his fling at me. To him I was only an idle knave, born to consume the fruits of others' labors, and deserving no better fate than death, by ignominous expulsion from the industrious commonwealth. Ever since he so grossly libeled me, to compare one to a drone is the most orthodox form of denunciation for laziness, gluttony, and what has been called "general cussedness."

Now, I am proud to say to this court that I can disprove every charge brought against me, by simply proving that, to the best of my ability, I fulfill the express object for which I was born. Surely no creature can do any better than this, and excuse me for thinking that few men do as well.

CHARGED WITH LAZINESS.

If any of my enemies had authority to call the roll of my demerits, he would surely begin by accusing me of being too *lazy* to gather any honey. But an expert in points of this kind could remind him, that, if he examines my proboscis, he will see that it is much too short for sipping nectar from the opening flowers.

MAKES NO WAX.

I am free to admit, that I make no wax; but even Cheshire himself, whose microscopes have fairly turned me inside out, will tell you that I have not a single wax-secreting gland, and am also without those plastic, trowel-like jaws which enable the worker-bee to mold the wax into such delicate combs.

GATHERS NO POLLEN.

Now, do not insinuate that I might at least employ some of my leisure time in gathering pollen! Can you not see that my thighs have no basket-like grooves in which it could be packed, and are quite destitute of the bristles by which the workers hold the pollen in place?

ACCUSED OF BEING A LAZY COWARD.

No doubt you have often denounced me as a big, hulking coward that leaves to the women the whole defense of the state. Are you not aware that I have nothing to fit me for acting on the offensive? Would that I had one proportioned to my bulk! if only that I might make proof of it upon all who berate me for not accomplishing impossibilities!

I am not at all ashamed to admit that I spend the most of my time, not given to eating, either in sleeping or what you are pleased to call listless moping about the hive. Has it never occurred to you that, if I should try to assume the restless activity of the worker-bee, I could be nothing better than a meddlesome busy-body, perpetually interfering with the necessary business routine? I guess the silly meddler who would put me up to such nonsense ought more than once to have had a dish-cloth pinned to his rear, to teach him not to bother the women in their work!

MISUNDERSTOOD.

I am sorry to number Shakespeare among those who have misconceived me, by calling me "the lazy, yawning drone;" but as one of my maligners has likened me to Falstaff, I may be allowed to quote, in my own defense, what this great braggart, when accused of cowardice, says of himself to the prince: "Was it for me to kill the heir-apparent? Why, thou knowest I am as valiant as Hercules, but beware instinct; the lion will not touch the true prince. Instinct is a great matter; I was a coward on instinct. I shall think the better of myself and thee during my life. I for a valiant lion, and thou for a true prince." I lie not, like the false knight, when I say that what you call my laziness is a matter of pure instinct.

With all your boasted reason, you seem to have overlooked the doctrine of conservation of forces. You upbraid me with consuming so much of the precious honey, to the gathering of which I contribute nothing! Well! if I made a single uncalled-for motion, would not that necessitate an extra consumption of food? What better can I do, then, than to keep as quiet as possible? There is nothing either inside or outside of the hive which calls for any other line of conduct, until the young qeeens are on the wing; and as they do not sally forth until long after noon, why should I go abroad any earlier? I can assure you, that, if bridal excursions were in order as many hours in the day as the flowers secrete honey, no worker would ever be earlier to rise, or later to go to bed than myself.

MISREPRESENTED.

I an idle, lazy, listless lounger, forsooth! Does any one wish to witness the most perfect embodiment of indefatigable activity? Let him then look at me, when, at the proper time, with an eager, impetuous rush, and a manly resonant voice, I sally from the hive! See with what amazing speed I urge what our old friend Samuel Wagner called my "*circumvoluting*" flights! For aught you know, I may cover greater distances in describing these vast circles than the busiest worker in the longest summer day. There is great need, then, that I should be abundantly provisioned for such exhausting excursions; and it is only a law of nature that, on my return from them, all that I carried out with me should be found to have been used up. If you taunt me either for the full or the empty stomach, I merely ask you if you have never heard of honey-moon trips among your own people, which began with extra-full purses, to end only with uncomfortably light ones.

SAVAGE DELIGHT OVER MY DEATH.

To cap the climax of your abuse, what savage delight you take in seeing the worker drive me from my pleasant home! and how glibly you can moralize over what you call a righteous judgment upon a life spent in gluttony and inglorious ease! Just as if you did not know that the whole economy of the bee-hive is founded on the strictest principles of utilitarianism! Is not a worker-bee, when disabled by any accident, remorselessly dragged out to die, because it can no longer contribute to the general good? Even so exalted a personage as the queen-mother herself, as soon as it is plain that her fertility is too much impaired, has a writ of *supersedeas* served upon her, in favor of one of her own daughters.

Knowing well the law under which I was born, I urge nothing against being put to death when Shakespeare's "pale executioners" deem the day of my prospective usefulness to be over. Truly, the sword of Damocles is suspended over my head; and from the hour of my birth till that of my death it may fall at any moment. Many bitters are thus mingled with my sweets.

I have time to mention only one more. While I know that most of the young queens come safely back from their wedding-excursions, I can not help sometimes foreboding the worst, when I see that no drone ever returns to tell us of his experience.

APPRECIATED BY BONNER.

I will close my defense, by reminding you how the good father of the great Scotch bee-keeper, Bonner, showed his appreciation of our persecuted race. It was his custom to watch every year for the first flying drone. Its cheerful hum so filled him with delight, as the happy harbinger of approaching swarms, with their generous harvests of luscious sweets, that he called an instant halt on the work of his busy household, and devoted the rest of the day to holiday feasting. The patron of the drones ought for ever to bear the honored name of "Saint Bonner."

THE DECISION OF THE COURT.

This court having heard the defense of Sir Drone, pronounces him to be innocent of each and every one of the misdeeds alleged against him. It only regrets that it can not inflict adequate punishment upon his slanderers. Alas, my poor fellow! the lies against which you protest have had so many centuries the start of your true story that you may well despair of ever overtaking them in your short lifetime.

MORALS FROM THE DRONE'S PLEA.

From the plea of the drone, many good morals might easily be drawn; such as, "Do not give even a dog a bad name, unless you are sure he deserves it." The moral which I think will be most interesting to bee-keepers is this: "Beware of publishing false statements to the injury of any one's business, and then try to laugh them of as harmless 'scientific pleasantries.'"

THE DRONE'S PLEA AND THE WILEY LIE.

This plea of the drone might suggest more than one good moral; but I will confine myself to what I will call the "Professor Wiley Moral."

It is only too well known to most of our large honey-producers, that, some years ago, Prof. H. W. Wiley, an entomologist at present in the service of the Government at Washington, published substantially this statement; namely, that honey-combs are manufactured by human skill, and, after being filled with glucose, and neatly sealed over, are sold as genuine bees' honey, when the bees have had nothing whatever to do with a single step in the whole process. This absolute misstatement having got a good start, has widely, at home and abroad, prejudiced the public against the purest honey, even when offered for sale in the most beautiful combs. Although refuted again and again, it is constantly reappearing in print, and seems to have a vitality almost as great as when it first started out on its hurtful career. Prof. Wiley, when called to account for fabricating such a story, excused himself by saying, that he meant it only as a "*scientific pleasantry!*" His worst enemies could wish him no harder task than, over his own signature, to try to stop the pestiferous march of (to call it by no harsher name) his incautious utterance.

> As he is guilty, that shooteth arrows and lances unto death, so is the man that hateth his friend deceitfully, and, when he is taken, saith, I did it in jest.—PROV. 26: 18, 19.

The above is the Douay, or Catholic version. I prefer this version of these verses to our common version. Could there be a stronger condemnation of Wiley's "scientific pleasantry"?

Dayton, O., March 8, 1888. L. L. LANGSTROTH.

FOOD OF LARVAL BEES.

PROF. COOK TELLS US THE EFFECT OF TOO MUCH WATER IN THE WINTERING CELLAR.

MR. EDITOR:—I see by last GLEANINGS that you do not wholly understand what I meant to explain as to food of larval bees. As I said, while the queen larva is usually fed the secreted food—bee-milk—to the very last, the worker larvæ are fed—must be fed—some pollen and probably some honey just at the last before the cell is sealed. If we examine closely we find the digestive tube of the full-grown worker larva yellow with pollen. Dufour was partly correct, then, in saying that larvæ are fed on digested food, for certainly honey is digested nectar. Yet Dufour supposed the cream-like food—bee-milk—to be also digested food, while, as Schiemenz has so well shown, this is doubtless secreted material from the cephalic glands.

Occasionally a queen larva is found to have some of this pollen. Berlepsch suggested that this was wholly accidental.

BEES IN WINTER.

I have just been having an experience that is interesting to me. Your readers know that we are wintering our bees this winter in our new bee-house cellar. Let me say that the bees were in very fine condition last fall. They also had very nice honey. I never saw bees in better trim for winter. The bees were put into the cellar Nov. 12, 1887.

I supposed the cellar was so I could control the temperature exactly to my liking, and was so drained that I could regulate the water at will. But, "The best-laid schemes o' mice an' men gang aft a-gley." We have had very cold weather, and long continued. I was away two weeks. When I left, the bees were very quiet at 38° F. As I have wintered bees admirably several times at that temperature, I felt easy. When I returned, the temperature was down to 30° F., and the bees were disturbed and noisy. This has always been my experience. When a cellar temperature falls below 35° the bees are disturbed. With the temperature at 38° F. they hardly made a noise as I entered with a light. At 30° F. they came rushing out as soon as I entered. This corroborates what I felt sure years ago was true—that bees are disquieted if the temperature of the cellar containing them falls below 38° F. to 40° F. The careful researches of Newport, years ago, established the same truth.

Well, I thought that here was a chance for a valuable experiment. I would leave the cellar at the same temperature, 30° F., and see if the bees which were in such good trim in the fall, and provided with good stores, would mind the disquieting effect of this low temperature. After four weeks of this temperature we had a thaw—several warm days, and water at 40° rushed into my cellar. My drains would not work. The temperature rose to 40° F., and the bees became very quiet. Last night we had a heavy rain. This morning I was early at the bee-house, and my cellar was a miniature lake. Some hives were floating, others were filled to within two inches of the top of the frames. I fixed and examined all as soon as I could. To my surprise, not a colony was dead, and not a sign of dysentery did I see. Of course, I was most happily disappointed, not to say overjoyed. Is it not more than probable that, with the bees in best condition as to food and strength, they will endure even a very cold temperature? Let me say, that we excluded pollen from the hives as we put them up in the fall.

I had thought I would say no more on hibernation, but I think our young bee-keepers are likely to be misled, and so a word ought to be spoken. This winter I was at Dr. Miller's. His cellars were at the regulation temperature, 45° F. We carefully examined hive after hive, and the bees in every case, if we watched patiently, could be seen to move. I examined several colonies in my own cellar, with temperature at 38° F., and again at 30° F. In every case a little patience would detect the bees crowding into the cluster. I have several winters kept nuclei in observatory hives. By careful attention I found the bees were never stationary for any considerable time. I say, then, that, if bees sleep in winter, their slumbers are, in every one of the numerous cases that I have examined, under very varied conditions, very frequently disturbed.

Bertie, in splitting wood the other day, came across some black ants. They seemed utterly dead. Pinching or rough treatment of any kind would not arouse them at all. They were brought into a warm room, and soon were wide awake and lively. These ants take no food the winter through. The same is true of wild bees. Now, certainly this is very different from bees. The bees move and must eat, or die. If we say the bees hibernate, what do the wild bees, wasps, and ants do? I think the word hibernate had better be used to designate the ants' winter state, and quiescence or inactivity, that of the bees'. If bees truly hibernate, they would not consume more honey in a cellar whose temperature was 32° F. than in one with a temperature at 45° F., but I am sure they do. Now, Mr. Editor, I would suggest that writers for our bee-papers do not write from mere closet meditation, or simply from the outpourings of their inner consciousness, but that they go to the bees and question them, and give us facts, then we shall have less chaff.

Let me add, that it is not strange that bees live for days and even weeks without food. Their very life habits—I refer to swarming—demand provision against starvation in case of long fasting. I have known swarms to remain clustered nearly two days. This was during the active season, when their vital energies were fully intact. In fall, winter, and spring, then, we should suppose that, if put to fasting, they might live and not suffer severely, even for many days; for now they are inactive, it is the resting season. In all our speculation about organisms we must remember their natural peculiarities and habits.

Right here I wish to refer to the article by my friend Bingham, for there are few whose opinion in bee-matters I value more highly. I fully agree with him as to facts. I have known bees to winter exceedingly well—and several cases too—where the cellar in which they wintered was as light as many a living-room is. Every thing all right—food, bees, and temperature, and the light does no harm. But let the temperature go to freezing, or rise to 55° or 60° F., say, and I should fear light.

Now for speculation: Because *we* need light, it does not follow that the bees do. They were developed under conditions that precluded light, often for weeks or months. Were light necessary to their health they could not have developed into our present bees at all, for darkness is their necessary lot for days together. Thus while I agree with my friend as to his facts, I do not accept his conclusions. A. J. COOK.

Agricultural College, Mich.

Why, good friend C., I do not see that your best-laid schemes have "gang a-gley" very badly, after all; for, if I understand you, you did not lose even a colony, although the cellar was flooded. I presume all you did with the water-soaked hives was to let the water off and let the bees fix it themselves. A few days ago a friend in the South stated that the water got into their hives and wet the combs perhaps half way up. He asked if it were possible for him to take the combs out and dry them. I told him to let them alone and let the bees get rid of the water themselves. I have seen bees under such circumstances; and where the water rises slowly they creep up out of the way, even going into the upper parts of the hives where they are permitted to do so. When the water goes down they go back, lick it up, and fix things up all right.—I agree with you exactly in regard to letting accounts of personal work take the place of "closet meditations," as you call it. There may be some publication that can afford to pay writers on bees and rural industries, who stay indoors all the while; but our journal is surely not one of that kind. After one has worked in the fields, however, and met face to face with strange facts, we are glad to receive suggestions in regard to the probable explanation of said facts.

MANNA OF THE PRESENT DAY.

THE HONEY-DEW OF EASTERN TURKEY.

MR. COLE, of Bitlis, a missionary in Eastern Turkey, in describing a journey from Harpoot to Bitlis, says: "We traveled for four days through a region where had newly fallen a remarkable deposit of "heavenly bread," as the natives sometimes call it—manna. There were extensive forests of scrubby oaks, and most of the deposit was on the leaves. Thousands of the poor peasants—men, women, and children—were upon the plains gathering the sweet substance. Some of them plunge into kettles of boiling water the newly cut branches of the oaks. This washes off the deposit, until the water becomes so sweet as to remind one of a veritable sugaring-off in the old Granite State, as he takes sips of it. Other companies of natives may be seen vigorously beating with sticks the branches that, from being spread on the ground, have so dried that the glittering crystals fall readily upon the carpet spread to receive them. The crystals are separated from the pieces of leaves by the sieve, and then the manna is pressed into cakes for use. The manna is in great demand among these Oriental Christians. As we were traveling through a rather dry region, the article came into play for our plain repasts."

Now, here is honey-dew with a vengeance; whole forests of "scrubby oaks" covered with it; and the "men, women, and children gathering it in," instead of the bees doing it; and they plunge the branches into boiling water and wash it off in the kettle—*bugs and all*, do they?—until the syrup tastes like maple syrup just ready to sugar off, while others beat the branches on a carpet, with sticks, to separate the glittering crystals, and then sift them through a sieve to get the pieces of leaves out; then the crystals (probably about as large as coarse corn-meal grains) are pressed into cakes, and eaten with relish. Now, have *we* any missionary in Eastern Turkey? If we have, and he reads GLEANINGS, won't he *please* tell us more about this honey-dew that the natives call manna? Are the crystals white, like white corn meal, or are they of the color of glue? Are there billions of little green bugs crawling up and over and under those scrubby oaks? and if these little bugs are there, do the natives know it? and if they do know it, do they care? MAHALA B. CHADDOCK.

Vermont, Ill.

Why, Mrs. C., you do not need to go away off to Turkey to find this manna, for it has been described on the pages of GLEANINGS, as coming from Oregon. I had a box of branches of an evergreen-tree at the Toronto National Convention. These branches were so covered with drops of sugar, or candy, that one would think it had been dipped in melted sugar. You take it for granted that these sugar-drops are produced by insects; but I believe the conclusion in regard to the Oregon manna was not in that direction. If I remember correctly, it seemed to be an exudation from the tree—something as resin exudes from resinous woods; but instead of being resin it was sugar. In taste, the sugar was not unlike maple; but perhaps that which exudes from hickory-trees when cut down in the spring is still more like it, both in taste and appearance. Perhaps some of our readers in Oregon can tell us whether they have candy growing on the trees up there every season, or only occasionally.

NEW HONEY GLISTENING IN THE CELLS.

WINTERED SPLENDIDLY, AND LITTLE STORES CONSUMED.

IN examining my bees a few days ago, I found plenty of brood and new honey glistening in the cells. The weather is warm and spring like, and the bees are carrying in pollen lively. I have over 60 colonies, in apparently good condition. I weighed 2 colonies to-day, and found 30 lbs. of honey in the brood-chamber in each. They have wintered well on summer stands, and consumed but little stores. It has been a mild winter, and I feared they would run short. I am trying to get my neighbors interested in bees. Those who keep bees have them in box hives, and run from one to 40 colonies; and all to whom I have shown my improved hives are delighted with the simplicity, ease, and perfection with which they are handled. There seems a general revival in bee culture hereabouts.

The general ignorance which prevails here on this topic is suggestive of the necessity of greater use of your A B C. J. C. FRISBEE.

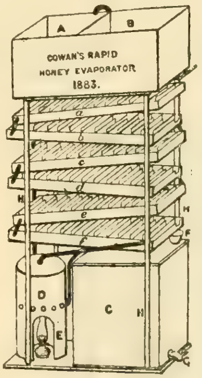
Suffolk, Va., Feb. 21, 1888.

RIPENING HONEY ARTIFICIALLY.

THOMAS WILLIAM COWAN'S METHOD.

SOME years ago Mr. Thos. Wm. Cowan, of the *British Bee Journal*, sent us a leaflet, with description and illustration of his method of ripening honey artificially. At the time, we had intended to give it insertion in GLEANINGS; but in some way or other it got mislaid. When Mr. Cowan was here he mentioned the fact of his having sent the leaflet referred to. This reminded us that it had never appeared in the pages of our journal. A diligent search was made, but without success. Very recently a clerk ran across it, and handed it to us. As there is so much of value in it we decided to insert it, even at this late date, and here it is:

The honey harvest could be much increased, if, as fast as the nectar is collected from the flowers and put into the cells by the bees, it could be safely extracted. It is well known, that, after the bees store their honey, and before it is sealed up, it has to undergo a process of ripening, or it will be liable to ferment. The heat of the hive assists in the process of evaporation, and only when the superfluous moisture has been extracted from it are the cells closed. Those who have had experience in extracting honey know the honey in the sealed combs is much thicker than that in the open cells, and that it is only safe to put the former into jars. There is a great deal of honey shown and sold that is unripe, but this in a very short time begins to ferment, and even becomes sour. The appearance of unripe honey is also peculiar. It has a decided green hue, and is not improperly called "green honey." In all books we are told not to extract from unsealed combs, and also for wintering we are recommended to extract all honey not sealed over, because the thin watery honey is likely to produce disease. It is from its readiness to ferment that disease (dysentery) is produced. When bees collect honey they put it into the empty cells, a little into each, so as to expose a large surface of the honey to the influence of the heat of the hive. If the income has not been very great during the day, the bees are able to evaporate the moisture sufficiently during a warm night to enable them to carry the honey from the lower cells to those above. As the honey becomes ripened it is sealed over, that at the top being ready first. If, on the other hand, the bees have collected a very large quantity of honey in the day, they are not able to evaporate it in the night, and, therefore, do not store it up above. All the cells being full, the bees returning with honey do not find anywhere to put it, and the consequence is that they waste their time in converting it into wax, and adding it to their cells. When bees are in this condition I think instinct (or reason) prompts them to make preparations for swarming. Queen-cells (which take a large amount of wax) are constructed as a preliminary step. Now, if we wish to prevent this we should extract the honey, and by extracting it daily a very much larger quantity of honey can be obtained than if we waited for it to be sealed over. We must also bear in mind that the sealing over is done at the expense of honey, twenty pounds being consumed to produce one pound of wax. Hitherto no satisfactory method has been devised for ripening honey, the ordinary cans doing very well when a small quantity of unripe honey is extracted with a large quantity of ripe honey, but they are unfit for large quantities. From experiments I have been carrying on I find that if honey is subjected to a heat under 200° Fahrenheit it is in no way injured either in color or flavor. It must, however, not be put into an oven, or the flavor is decidedly spoiled. The illustration shows the sort of apparatus I have devised for evaporating honey, and which has been found to work quite satisfactorily. The honey can be passed over it as many times as it is necessary to bring it to a proper consistency, and, being exposed to the air, the evaporation is very rapid. It is very compact, the space occupied being quite small. The honey evaporated in this way can be put up into jars at once, and is much clearer than the ripe honey extracted, because the warmth drives all the air-bubbles to the top of the receiving-can, whereas in the thick honey the air-bubbles are very slow in ascending; and sometimes, if the honey is very thick, they do not rise at all, and this gives the honey a cloudy appearance. By referring to the figure it will be seen that the evaporator consists of a series of trays heated with hot water, and the honey passing over these is received in the tank below in a fit state to put into jars. By referring to the illustration it will be seen that the tank at the top is divided into two compartments, A being for water, and B to contain the unripe honey as it is taken from the extractor. Below the tank are the trays, six in number, *a, b, c, d, e, f*, and they slope in opposite directions. Each of these trays has a hot-water chamber at the bottom, and the top portion is divided by means of partitions of tin in such a way that the honey flows backward and forward, and comes in contact with every portion of the warmed surface. D is a small boiler heated by a gas-jet or lamp, and has a pipe from tank A to keep it supplied with water. Another pipe is taken from the top of boiler D, and communicates with the lower end of tray *f*. Each tray has a connection with the next one above it at opposite sides, so that the water when heated in the boiler passes into the tank at the bottom of tray *f*, then into *e*, then *d*, and so on until it reaches the higher point of tray *a*; it then returns by a pipe direct to the boiler. In this way a constant circulation of hot water is kept up; and to allow for the expansion of the water in the event of its boiling, another pipe leaves the highest point of tray *a*, and is turned over tank A as shown in illustration.



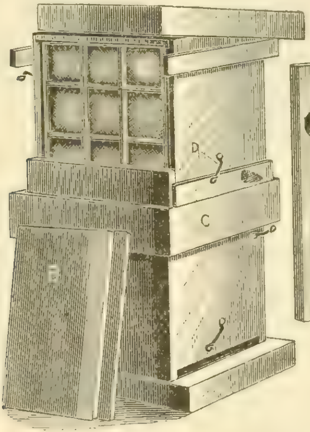
When it is required to work the machine the unripe honey is put into tank B, and water into tank A, taking care to keep this about half full, the lamp lighted, and as soon as the water becomes warm the valve at the bottom of the tank B is opened by the lever I, and the honey is allowed to flow into the top tray. The quantity can be regulated by opening the valve more or less. The thin honey flows along the zigzag channel or tray *a* until it reaches the lower end of it, when it drops down into tray *b*; and so from one tray to another until at last it runs from the tray *f* through the funnel F into the receiving-tank C, and can be bottled off by means of the valve G. In this way the honey travels a distance of 100 feet over a heated surface, and all the superfluous moisture is evaporated on its passage. If the honey is very thin, it may require to be passed through the machine a second time. The machine is constructed entirely of tin, as I find zinc or galvanized iron injures honey. From the rapidity with which the machine acts, I have called it "The Rapid Honey-Evaporator."

Our readers familiar with this matter will recognize the above arrangement to be virtually the same as the hot-water apparatus in common use. The stand-pipe is the receptacle A. The trays with a false bottom are equivalent to the series of pipes, the boiler being located entirely below the pipes to be warmed. As soon as the water in the boiler becomes hotter than the water in the stand-pipe A, the hot water ascends underneath the trays; and when it has become cooled off at A, the cold water goes down into the lower part of the boiler again, through the return-pipe. As long as the water in the boiler is warmer than that in the stand-pipe A, there will be a constant circulation. The apparatus is quite ingenious, and will, no doubt, do the work beautifully.

ANOTHER CONE-CASE BEE-ESCAPE.

ONE WHICH ANTEDATES THE ONE DESCRIBED BY J. S. REESE ON PAGE 15.

THE wire-cone bee-escapes described by Mr. Reese I have used quite extensively *for two seasons*. I have experimented with them in various ways and under various circumstances. I think them a valuable improvement in the hands of the careful apiarist in the saving of time and labor at a season of the year when such labor-saving improvements in the apiary are most appreciated; and especially in out-apiaries, where I had no bee-house or place to work out of the reach of the bees, I have been able to use them with decided advantage. I have used them in the manner suggested by Dr. C. C. Miller, by piling the cases from a number of colonies together in piles, as high as convenient, and placing an empty case with cones on top of each pile, the cones projecting upward. I have never been able to make this plan work quite as well as by using one of the fixtures on each separate surplus apartment. The objection is, that it seems in some way, by bringing the bees of a number of different colonies in contact, to communicate to the bees in the hives that something a little out of the usual line is going on. The young bees, too, that happen to be in the cases are not able to find their way home, and they hang about the escape and attract the other bees.



H. R. BOARDMAN'S HIVE, AND HOW HE USES A BEE-ESCAPE.

I use mostly wide frames for sections in the regular size of hive, especially in out-apiaries. When I wish to remove them I simply lift them up and place a cover on top of the brood-chamber between that and the surplus hive, leaving the surplus hive on top of the brood-hive just as it was, only separated by the cover. I have entrance strips about 1½ inches wide, as at A, which are held in position by a wire button, D, and for the purpose of closing or regulating the entrance. These also I use for bee-escapes by putting a cone over a hole made through them, and one of these I place over the surplus-hive entrance. The cone will project out over the hive as in the cut. This enables the bees, young as well as old, to find their way back to the brood-hives. I have, on several occasions, left surplus hives exposed in the apiary after the bees had run out, for several days, in order to test the value of the escape, and no bees were ever attracted after they were done running out, and this, too, at a time when there was no honey coming in. But I discovered that the bees from other hives will sometimes find their way in through the cones, at the time the bees are escaping, therefore I would advise care in their use.

The method of placing an empty case, containing the escapes, between the brood-chamber and the surplus, as described by Mr. Reese, has some advantages, but it involves a little too much manipulation to suit me in working in out-apiaries, and especially if it can be done a shorter way.

I have never been able to see any advantage in having the cones double. The theory is a good one, and I was quite sure, before trying them, that, by preventing the bees from feeding through they would be much better; but after trying them I became satisfied that they were no better, and I abandoned them entirely for those made single. I find no trouble in making them with no other machinery or fixtures than simply a hard-wood form of the shape I wish the cones. This form is pointed, and by pressing it through a piece of wire cloth of proper size and then by pulling and pressing, the cloth will assume the required shape, and at the same time the opening at the apex can be made the desired size. I have made a great many in this way for various purposes. Any one can satisfy himself in regard to this method of making the cones, in a very few minutes. The projecting corners of the wire cloth may be trimmed off after the cones are formed.

I made a report of this same matter at the National Convention, at Chicago; but I presume among the very many other good things brought forward, these caused it to be overlooked or forgotten.

I trust that our good friend Mr. Reese, who has taken so much pains to describe this fixture, both in its use and manufacture, for the benefit of the bee-keeping fraternity, will not entertain a thought that I am trying to deprive him of any thing that belongs to him. Surely, if he has not priority in the invention he has been generous in bringing it promptly forward and offering it to the public.

H. R. Boardman.

East Townsend, O., Jan. 20, 1888.

The following is a private note; but as there are several things of interest in it we give it to our readers:

Friend Root:—After I had finished writing the description of the bee-escape it occurred to me that it would be *just the thing* to hitch Rolland to the sleigh this pleasant afternoon, and take my hives to our artist and have a picture made of them for your benefit. The result please find inclosed. The picture shows "the hive I use," with surplus apartment raised on top of the brood hive, and the entrance bee-escape attached. I have, in the picture, raised the cover of the surplus hive at the side and slid it back a little, and the side of the hive I have removed, giving you a good view of the first frame of sections nearest the side of the hive, and it also enables you to see the way the cover rests on the hive-cleats in order to give a bee-space over the top of the frames.

This movable side is a feature of "My Hive" which I think I have not before explained to you. You will see very readily what excellent facility it gives for examining the surplus apartment. It affords the same advantages for examination of the brood-chamber, and that, too, without removing the surplus. This will explain how I am able to cut out new combs for section starters as they are being built, with but little trouble. Simply cut them out from the open side of the hive, without removing the frames at all. H. R. BOARDMAN.

East Townsend, O., Jan. 20, 1888.

Friend B., we are very much obliged indeed for the pains you have taken to enlighten us, not only on this matter of bee-escapes, but in regard to the way in which you use that peculiar hive of yours, made in the form of a cube. You have given me the first good and excellent reason for having a side-opening hive. You may remember that I used the side-opening American hives for a good many years; and for cutting out the pieces of new comb as fast as the bees could build them, there could be nothing nicer than your arrangement. I do remember your report, and I do remember, too, that several other matters crowded it so closely that I was afraid it would be overlooked. Dr. Miller took it up, you may remember; and I feel sure there are few things in the production of comb honey that will help us more than some plan by which all the bees, old and young, may *get themselves* out of the surplus-boxes, and get safely back into the parent hive. No doubt a similar plan could be arranged for the Simplicity hive, but we should have to bore a hole in the front end, and I am opposed to boring holes in hives.

SPACE BETWEEN HIVES.

DR. MILLER GIVES US SOME SUGGESTIONS.

MR. J. C. STEWART, of Hopkins, Mo., writes, "My hives are on stakes 14 in. from the ground, and 7 feet apart. I want to set them down on bricks. How high from the ground is the entrance of your hives? I wish to know your best plan of spacing hives. In GLEANINGS, 1886, you gave cuts thus: ▌ ▌ ▌ ▌ and said to put thus: ▌▌ ▌▌. Now, my hives are 20 inches square, with flat tin roof, and your plan suggested using one for a table while working the other; but I want to go all around a hive. I have an idea, and this is it: Set the hives thus:

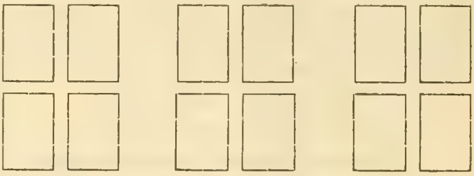
▌ ▌ ▌ ▌ ▌ ▌ ▌ ▌
▌ ▌ ▌ ▌ ▌ ▌

with a space of 30 inches between the two hives in a pair, and 7 feet between the pairs. Then I can sit between two hives, work at one and reach the other to lay any thing out of my hand."

The entrances to my hives are 3 to 5 inches from the ground, the inequality of the ground making a difference. Making every alternate space 30 inches is better than having the hives separated a uniform distance of 7 feet in the row; but I can see no advantage in occupying so much ground. The more compact the hives are placed, the more convenient for the operator. Neither would I alternate by making the wide spaces of one row come opposite the narrow spaces of another row. I doubt if there is in the plan any advantage for the bees, while for the operator it has the disadvantage of preventing what would otherwise be a free passage for a wheelbarrow at right angles to the main streets.

It is a convenience to have the cover of one hive to use as a table while working at the next hive; but you will find it more convenient to have this table in front rather than behind you; and if the pairs of hives stand as close as they can without touching, you can easily reach over the hive at which you are working, to place a smoker on its mate. Of course, this prevents working on all sides of the hive; but, as it looks to me, the advantage of this is hardly worth considering.

This whole matter of arranging hives is one that depends on circumstances, the lay of the ground, etc. Last year I kept my bees in four apiaries, and no two are exactly alike. The main thing I keep in view is to have the hives in pairs, and in straight rows. The hexagonal form, I think, is of no great advantage to the bees, if not a disadvantage, and it is easier to glance along a straight row to watch for swarming. In the home apiary and the Wilson apiary the hives face due east, and the principal streets run north and south, there being about 6 feet between the rows. The two hives of each pair in all the apiaries stand just as close as they can without interfering. In the Hastings apiary the hives face east, but the principal streets run east and west, because more convenient. The Belden apiary is in a dense evergreen grove (more dense, I suppose, than is good), and the hives face alternately east and west, two rows standing back to back as close as they can conveniently, in this manner:



This makes a very pleasant apiary to work in.

STANDS.

For the past two years I have used stands that are cheaper than my old ones, and I like them better. Take two pieces of board 6 inches wide (I use old fence-boards), having a length a little more than twice the width of a hive, or long enough so that two hives side by side will easily stand upon them. Now place them on the ground so that one may support the back ends of the hives, and one the front ends, and level them with a spirit-level, making the front one a little lower than the back one. Then take old pieces of boards of any width, about as long as the hives, and lay crosswise on the two boards, and your stand is ready to hold the hives. Besides being very inexpensive, these stands have the advantage of being made level in very much less time, and with much less trouble than stands made to hold a single hive. They can be left in place from year to year, and, each piece being separate, it can be replaced with new as soon as it gives out. Any old boards, pieces of boxes, etc., will do for the short pieces. C. C. MILLER.

Marengo, Ill.

Friend M., I am well aware that, the more compact the hives are placed, the more convenient for the operator; but in our apiary, even with the hives seven feet apart, and even though the chaff hives alternate with Simplicity hives, and have their entrances in opposite directions, there is a good deal of trouble with bees getting in the wrong hives. Sometimes, especially in the spring, almost a whole teacupful of bees will be found clustering on a neighboring hive, on a side where there is no entrance. The reason is, this neighboring hive looks so much like their own; and, in fact, there are so many hives looking almost precisely alike that they pitch on to the wrong hive. Now, if the entrances faced the same way, suppose this teacupful or more of bees would go into the hive where they don't belong. May be this state of affairs does not do any very great harm, but I feel troubled about it. When we used to have black bees in our apiary, sometimes a lot of Italians would pile into a hive of blacks. In this case we knew what was going on, for we could tell by their color where the bees belonged. The more regular and tasty you have your apiary arranged, the worse you will find this state of affairs. Setting the hives in pairs, or putting four together, as in your last diagram, I have reason to think, lessens this trouble to a considerable extent; but if you have several groups of four hives each, what is to prevent the bees from getting into the wrong group? I know that some claim that it does not make any difference if they do go into the wrong hives; but I am sure we have lost queens in that way; and Ernest suggests that it makes a very *big difference* when you get foul brood started in your apiary. Neighbor H. gets rid of all trouble of this kind by setting his hives promiscuously—one near this apple-tree, and the other one under that, and letting the weeds grow around the whole of them so that no two are alike in any shape or manner.

PACKAGES FOR RETAILING EXTRACTED HONEY.

FRIEND MUTH SPEAKS A LITTLE IN DEFENSE OF THE SQUARE HONEY-JARS.

FRIEND ROOT:—It has been my lot, of late, to be away from home several days of every week; and, when home again, I am busy going over my corrrespondence, and looking after the rest of my affairs. When gone, my son takes care of our business, with the aid of a younger brother, so you see that my time is occupied, not having enough left to read all of my bee-journals, nor to write an occasional article, notwithstanding there are many inducements. Whenever I see any article which, in my estimation, needs a correction, I must make that reply at once, otherwise it will never be done. This is one of my weak spots, of which every one has his share. I saw an article some time ago, and meant to reply, as I was somewhat interested; but not having time there and then, it slipped my mind again, and occurs to me now, having a leisure evening at the farm. To be positive when one knows that he is right, is a characteristic we admire; but does it not occur to you also, that many of our friends in apicultural and agricultural papers put up theories and state their experiences with a positiveness which is entirely out of place? I do believe that the greatest number of patents on bee-hives is granted to men who know nothing about bee-keeping, or whose experience was very limited. Yet their assertions are wonderful, and there is no end to their arguments. The same is the case in other matters.

The article referred to above was from a friend in Covington, in regard to honey-jars. I forget his exact language, but he gave his points very positively against the square glass honey-jars. "They won't do," my friend says; "we want something better and more attractive," or words to that effect; "I am selling gilt-edge honey, and know whereof I speak," etc. Now, I don't object to letting everybody follow his own idea, because life and business would be too monotonous if we should all do alike. But my friend knows that I am selling gilt-edge honey also, and 100 pounds to his one. So I, too, should know whereof I speak. My friend is a good man; and when he reads this article I am certain we shall coincide, and we shall be as good friends as ever. It is merely for the sake of the controversy, and in order to show both sides of the case, that I take up this matter.

We have a pretty large trade in extracted honey put up in our square glass jars. You can find them in almost every wholesale and retail house in our city, and from there they go, perhaps, to more parts of America than the jar honey of any other dealer in this country. This fact is due to our square glass jars, to a very large extent. We never made great pretensions, nor did we ever employ drummers. A good many years ago, eastern dealers were our strongest competitors in our city, with and because of their fancy jars; but now our jar honey has the field almost exclusively. I will send you a case when I get home, as a present. If you can get up a case more attractive for home trade, and more practical for shipping purposes, let us know, please, for we want the best. Our square glass jars are calculated for the trade.

We keep, also, tin buckets, fruit-jars, and tumblers filled with honey. We sell a good many; and if we were courting the retail trade only, or were peddling our honey from house to house, we should use the latter three packages principally. Not one in a hundred of our retail customers takes a tumbler or a fruit-jar for the reason that he can make use again of the empty package. But as this may be different in other localities, let every one get the very package which suits best for his market, for which every one should be the best judge himself, otherwise he will miss the point.

Cincinnati, Feb. 28, 1888. CHAS. F. MUTH.

I do not need to tell you, old friend, that I am with you on what you say about patents on bee-hives. I should not mind so much the agents being positive in regard to their own notions, if they did not go through the country taking people's honest hard earnings, giving them worse than nothing at all for an equivalent.— Your cases of honey are at hand, and they are certainly the nicest for retail of any thing I have ever seen. We notice you have adopted the corrugated paper for packing, entirely doing away with hay, straw, sawdust, or any thing of that sort. The bottles are all nice and clean, without even any dust on them to be brushed off. Neither is there any thing dauby about the packages. Very likely you have told us before what you do when the honey gets candied; or perhaps you don't do any thing but turn such bottles over to such customers as prefer candied honey. Our trade in honey has now gone entirely into selling it in large packages in bulk, and our customers bottle it or put it into tumblers, as they choose; but the candying is still a detriment in our small retail trade. To have it go off readily we have to keep melting it as fast as it gets solid. Your box of dime packages is especially handsome. We will set it on the wagon and see how it goes off.

THE WATER WE DRINK.

SHOULD IT CONTAIN LIVING CREATURES?

MR. ANDREW PARTRIDGE, Flushing, Michigan, sends me, in a small vial of water, some little white animals which he pumps from his well, and wishes me to tell where they come from, and if they are good to drink. He requests a reply through GLEANINGS.

I often receive such specimens; and, as well water often shows these or similar specimens, the matter is one of some general interest. The little animals sent are very pretty. They are boat-shaped, with a double tail, and two pairs of antennæ. Strangest of all, they have but one eye—a big red one right in the center of the head—hence the name cyclops, from the old fabled giants whose single eye was said to ornament the center of the forehead. Those who have Webster's Unabridged Dictionary will get a good idea of this animal, as it is well illustrated there under the name "Cyclops." These simple little animals with their short legs and biting mouth-organs are bi-sexual, or there are both males and females. One curious feature is the habit of the female of attaching her bright green or red eggs to the outside of her body, which always interests my students as they study these curious little boatmen each summer. I have also had some shrimp-like tetradecapods sent me from wells. These, except from the number of legs (14), look very much like shrimps. Species of spring-tails or bristle-tails (*Poduridæ*) are also found sometimes in wells.

In reply to Mr. P.'s question, "Are they good to drink?" I think that, alone, it would take a large number to slake thirst; but I do not suppose that they are very harmful or dangerous. The worst feature of the case is, their presence argues some organic vegetable matter in the water; for either these or their prey must subsist on organized plant-food. That organic matter is not desirable in water, is one of the axioms of these days. Yet the fact that the famous old well of my boyhood home, whose water was so cold and sparkling, contained not very rarely these water boatmen, and the further fact that few families are so strong, vigorous, and healthy as were we, makes me question if these little wrigglers, when not too numerous, are particularly harmful. I should prefer to have my drinking-water so free from organic vegetable matter that no animal could live in it. Yet the finding of an occasional cyclops would not keep me awake nights. A. J. COOK.

Agricultural College, Mich.

I am glad you have told us about these things, friend Cook, for I have been afraid that people might get to be over-fastidious about the water they drink. I understand that the Croton water of the city of New York contains quite a menagerie of microscopic animalculæ; but may we therefore decide that it is dangerous to drink it? I am greatly in favor, however, where it can be done, of having water that contains nothing or next to nothing of this kind; and the thought occurs to me, while thinking of the old well of your boyhood home, is it not possible that this organic matter comes from surface water that filters into the well, instead of being in the water as it issues from the rocky recesses of the earth? If I am correct, the water that comes direct from the cavity of a rock, or from a spring, contains nothing of this kind. Now, while I am trying to save space, as I advise the rest of you, a thought occurs that I can not quite keep to myself. When I commenced paying my attentions to a certain young lady, her father, who was a steady old farmer, objected to me on the ground that I was so changeable that I would never amount to any thing. His objection did me good, and in the meanwhile I set about getting acquainted with the old gentleman. One Thursday afternoon I went over to see the young lady in question, and I carried along a large nice microscope that I had just purchased. I knew of a stagnant pool near by, and thought I should find something interesting; and these very cyclops which you describe, with the aid of the microscope took the old gentleman so by storm (for he was an intense lover of nature, although I did not know it at the time) that he and I became fast friends from that day onward. The young lady enjoyed seeing her father so much enraptured with the cyclops, about as well as I did. Do you wonder that Ernest and Huber take naturally to microscopes?

MORE ABOUT ANNA QUILLIN.

AND A REBUKE TO THE MOST OF US WHO THINK WE HAVE A HARD TIME OF IT.

MR. ROOT:—After that little letter about Anna Quillin was printed in GLEANINGS, I received a good many letters asking about her shells and Indian relics, wanting to know where they could buy Indian axes, mortar-bowls, etc. Then the letter was copied from GLEANINGS into the New York *Tribune*, and for two weeks postals showered down on me, asking where to get Indian relics. I wrote to Anna, asking where she got hers, and she wrote the following, which I hope you will print, as it will save all the readers of GLEANINGS from writing to me on the subject. Her letter shows so brave a spirit that perhaps it will do some lazy grumbling mortal good to read it, and, perhaps, may cheer some one who thinks he has more to bear than anybody else ever had.

ANNA QUILLIN'S LETTER TO MRS. CHADDOCK.

My Dear Mrs. Chaddock:—I am truly sorry that I can not give any satisfactory answer in regard to the Indian relics. I have relics from Texas, Virginia, Connecticut, Dakota, and Wyoming Territory; but it would be useless for me to give the addresses of the persons of whom I obtained them, as they have disposed of all they had. I tried to get more for some friends, but could not. I have been wanting to write to you, but have not succeeded, and am stealing the time to write this; for it is late at night, and all the rest are in bed, and I know some of them are asleep; for I *hear* them.

I have been so rushed with work that my friends say I do not take time to eat or sleep; but that is an exaggeration, of course. I have had all the fancy-work that I could do for the last three months, and have orders ahead that will keep me busy for a month. Before I get one order filled, another comes. I worked so hard to fill orders that were wanted for Christmas that I almost used myself up. I am not getting any new specimens now, but am working for *cash*. It is a *very* slow way to make money; but, "half a loaf is better than no bread," and I am trying to earn enough to buy a nice case for my specimens. I shall do it, too, if I live long enough.

I've been trying to think of something to write for GLEANINGS, and intend to write as soon as I can. I'll do it just to please you; but I do not believe that Mr. Root will print it. You have made me out better than I am—have given me such an exalted character that I fear I can not come up to it. ANNA B. QUILLIN.

Ipava, Fulton Co., Ill., Jan. 20, 1888.

And some people write and ask me if Anna Quillin is a "myth," or if she is really a living woman. Does not this letter sound as if she were alive, and a worker in the world too? It seems to me that the Indian Agency would be a good place to send to for Indian relics. MAHALA B. CHADDOCK.

Vermont, Ill., Jan. 20, 1888.

Thank you, Mrs. C., for the letter you sent; and I want to say to our good friend Anna, that we are not going to consider her an exalted character at all, in the way in which she puts it; but we all thank her for the lesson she has taught us; namely, to remember, when we feel like complaining of our lot, that, on the contrary, we have so much cause for gratitude and thanksgiving to God we ought to be ashamed to complain for just one minute. Is there any one among the readers of GLEANINGS who feels he has any right to say he is not able to help himself any longer, after reading the above? Please do write us something, dear friend Anna. I *know* it will be helpful.

EXTRACTING HONEY.

E. FRANCE GIVES HIS METHOD, AND ALSO HOW HE GRADES IT FOR MARKET.

I AM asked to give some thoughts on how to get the best extracted honey. First, have a location well supplied with the best honey-producing flowers, which, in my location, is, first, white clover; then second best, basswood timber. But there is nothing here that equals the white-clover honey. It is important to get as much of that as possible in its very best condition. In order to do that we must have every thing ready that may be wanted to work with, that no time be lost by the bees. We want plenty of good clean combs for the bees to store their honey in. To get these we must see to it that the dark honey that is in the combs, left from their winter stores, and what is gathered in the spring time from dandelions and fruit-blossoms, etc., which is dark, is all emptied out of the combs, so as not to be mixed with our nice white-clover honey, just as soon as our bees commence on the white clover, and are making a living. Then we commence to extract, and whirl out all the honey we can get from every comb in the hive that has the least bit of dark honey in it. A very little of this dark honey will stain or darken a whole barrel of white honey. The cleaner we get out this first extracting, the whiter the second extracting will be. The first extracting with us is very dark, and is usually sold at the cracker-factories for about two cents less on a pound than the best honey.

If the weather is not too wet, one week's time after we extracted the first time we can extract again. But if we are having wet weather, it is better to wait two or three days longer, for the honey to get thick and ripe. But unless the weather is very wet, we get good thick honey when we extract once in a week. Do the best we can when we take out the first extracting, there will be enough of the dark honey left in the combs to darken the second extracting considerably.

The second extracting usually sells for about one cent less on a pound than the best honey. In good average seasons we extract four or five times, depending somewhat on the weather as to moisture. If the weather is dry, and yet moist enough to favor a good honey-flow, the honey will be first rate if taken out as often as once a week. In wet weather it is best to wait ten or twelve days, or long enough for the honey to get thick and ripe. If two-thirds of the honey is capped over, the honey is all right; don't wait any longer.

Our third extracting is the best quality of any that we get. It is strictly pure white clover, and commands the highest price. The fourth extracting is as good as the third, if we get it all out before the basswood blossoms open; still, I can usually sell mixed clover and basswood at the same price as clear clover. The basswood usually begins to blossom before we get all of the fourth extracting out, so that the fifth extracting with us is pure basswood honey. We leave enough of the basswood honey in the hives for the bees to winter on, as, after the basswood, we don't have honey-producing flowers to more than give the bees their daily living.

We have some customers who like the flavor of the basswood honey the best of any. With a big crop of honey it is important to have each grade of honey kept strictly labeled; and, for convenience, each grade in the storeroom in divisions by themselves. The way we do it is this: We take barrels with us to the different apiaries, enough to hold the day's honey that we expect to get. We can estimate very closely how much storage room we want, to hold the day's yield. We extract one whole apiary in a day. In good seasons we get 2000 lbs. and upward in a day in the best part of the season. We haul home every night all the honey we have taken through the day, and put it in our storehouse. Then we tack on to the head of each barrel a card, on which we mark the date—year, month, and day; the number of the extracting; then "thick," "thin," or "medium," as the case may be. All barrels of thin honey, if we have any, are set off in a lot by themselves, the thick by itself; the same with the medium in thickness. Then we have our honey in good shape to sell. We know just what there is in every barrel. Our labels give us the exact quality of the honey. For convenience we have them divided off together, as regards thickness. If we have any fall feeding to do we feed the thinnest honey (usually the basswood). Be sure to work off all the thinnest honey before the heat of another summer arrives, as thin honey would be likely to sour if kept over until next summer. If we happen to have any thin honey it will sell better when it is fresh. If we keep any over the next season, let it be of the best and thickest honey. Good thick honey will keep for years. I for one have learned a good lesson this poor season. Last year we had 42,000 pounds of the best of honey; and as we had good seasons for four or five years before, the honey-markets were loaded. I went in with the rest and sold, for what I could get, all of that crop, and what we had on hand of other crops, all at low prices. The same honey kept until now would have sold quick for nearly double the price we got for it. If we have good thick honey it will keep in a dry place for years. We should not crowd the market, if we are so fortunate as to have a big crop of good thick honey. E. FRANCE.

Platteville, Wis.

I am inclined to think, friend F., that a good many of us have learned just about the lesson you have. When you have a very nice article of good thick honey, don't be in a hurry to sell it all off. Every few years there will be a scarcity, and the extra price will pay the interest on the money for keeping it over.

A CHAPTER ON POLLEN.

FRIEND DOOLITTLE TELLS US WHERE IT COMES FROM.

WHILE reading Prof. Cook's interesting article, telling about the value of pollen to our little pets, I thought a short article on the sources of pollen, and how the source from which it was obtained could be told by the color of pellets brought in by the bees, might not be amiss; while a close observation as to color, and a tracing of this color to the source from which it came, would be of much benefit to the juveniles, if not to some of our older apiarists.

That pollen which comes the earliest in the spring has the most attraction for us, for two reasons; first, at that time we are anxious to see what our pets are doing, after the long winter's sleep, which spring has broken, bringing life and activity to us as well as the bees; and, second, this early pollen is that upon which our hopes depend for the bees to gather our future crop of honey, if we have any. If we are not in a favored locality for early pollen, I think it would well pay to set out some trees of the early-bearing kinds, such as the pussy willows, and elms, both red and swamp, which not only yield early pollen in abundance, but are very nice as ornamental shrubs and trees.

No pollen-bearer, in this locality, is of more value or of greater beauty than the swamp elm; and while its natural home is in the swamp, yet it thrives well on high and dry ground. Later on, there are so many trees and plants that yield pollen plentifully, that there will, without doubt, be a fair supply, even in the least-favored locality. If not, fruit-trees should be planted for the fruit and second early supply of pollen. Next, orchard grass should be sown for hay, which yields pollen the earliest and most abundantly of all the grasses in this locality; while, later on, the mammoth red clover and corn-tassel will give an abundant supply. But, how about the colors of the different pollens? do they all bear the same color as the flowers from which they are gathered? No, not all; for all know that the colors of the different clovers are a deep pink, for the two reds; light pink to nearly white for the alsike, and white for the white clover; yet all of the clovers give pollen of the same color, which is of a greenish-brown hue. I have examined very closely on this point, for some have withstood this, giving different colors to the pollens from the different clovers, and also describing the pollen as green, gray, etc.

The pollen which is carried over the winter, or such as is preserved by having honey put over it and sealed up, is always from clover, in this locality, so far as my observation goes. This is called "bee-bread" by most people, and in color is a dark brown. Whereby it is changed from greenish brown to dark brown, I do not know, unless the saturation of it with honey has that effect upon it.

Now, how to tell the source from which the different-colored pollens come, as we see them going into the hive: I know of but one way to do this, which is, by watching the bee as it loads up on the flower, and this is just what I want the juveniles (and the older ones too) to do; for herein is a chance to learn much which the careless and lazy are deficient in. To show our pollen resources, and the juveniles how well I carry out what I preach, I will give a description of the various sources and time of blooming of the flowers, as well as the color of the different kinds.

First, we have the skunk cabbage, blooming from March 20 to April 20; color of flower and pollen, yellow. Next in order is the poplar, coming out ten days later; flower a brownish white, pollen nearly black, or the nearest to black of any we have. Then comes pussy willow, soft maple, and red and swamp elm. The colors of the pollen from these are, bright yellow, light pink, and very light green, respectively, although the pollen from the red elm borders on the yellow shade. The pussy willow and soft maple bloom some two or three days earlier than the elms, and about four days after the poplar. Next in order comes the hard maple, with about ten days intervening between that and the elm, the color of the pollen being the same as the blossom, yellow.

About May 20 to 25 the fruit-trees bloom, together with the dandelion. The color of the former flowers varies; but, so far as I have observed, the pollen from all is a dingy white. That of the dandelion is an orange yellow, the same as the flower. After this there is a scarcity of pollen till the sorrel and buttercups bloom, which is just before the orchard grass, or about June 10 to 15th. The color of the pollen of the first two is yellow, the buttercup being on the orange, and the sorrel light, while that from the orchard grass is the same as the sorrel. The blossom of the sorrel is from yellow to pink in color.

Next come the clovers, which I have described. The basswood now opens (about July 5 to 15), during the bloom of which little or no pollen is gathered, although some claim that basswood yields pollen. What little is gathered at this time comes from teasel, the color of which is white like the flower. The last of July and first of August, corn-tassel gives plenty of pollen, the color of which is light yellow. Next in order is buckwheat, which gives much pollen of a whitish-gray color. This is the last pollen obtained of any amount, although we have a little from wild mustard, and, very late, from witch-hazel. Of minor importance, we have pollen from the beech, wild grape, chestnut, different grasses, goldenrod, etc., in the order named. I should be pleased to hear of the different pollen resources of other localities, and presume it might be interesting to others. G. M. DOOLITTLE.

Borodino, N. Y., March 1, 1888.

Friend D., when you mentioned poplar as

being the second source from which honey is obtained with you, I did not at first understand you. I have been so long accustomed to hearing our friends in the South call whitewood poplar, that I supposed you meant the great tulip-shaped blossoms; but I now conclude you mean by poplar a tree that bears a sort of tag, something like the alder. It is the same tree, I think, that we call the quaking aspen, and it furnishes white poplar for sections very much like the Vermont white poplar. It seems a little unfortunate that this word "poplar" should be applied to trees so widely different. Can not some of our botanists straighten us up on our nomenclature of trees? We notice that Gray's Botany says the tulip-tree is also called whitewood and even poplar; and in another place it describes poplar as the American aspen. The variety called the "downy poplar," growing on wet grounds, is perhaps the one you refer to. In our locality the bees get a very bright-yellow pollen late in the fall, even after severe frosts. I have never yet been able to discover where it comes from. I think somebody has before suggested witch-hazel, which you refer to as being very late.

STATISTICS.

FURTHER SUGGESTIONS FROM PROF. COOK.

MR. EDITOR:—Soon after coming back from the National Convention, at Chicago, I wrote very fully to the Commissioner of Agriculture, and gave my letter to Pres. Willits, who was to visit Washington, and asked him to press the matter personally, which he kindly consented to do. He wrote me from Washington, that the head of the Department promised all possible aid, and asked that we should suggest how he could best serve us.

The Commissioner has also communicated with Dr. A. B. Mason—see last number of *American Bee Journal*, also GLEANINGS, and again asks for aid.

The committee, consisting of Dr. A. B. Mason, Mr. T. G. Newman, and myself, suggest that bee-keepers all through the United States write at once to Mr. T. G. Newman and offer service as reporters of statistics. The Commissioner wishes two for each county. While we can hardly hope for so much at first, the nearer we approximate to it the more value we shall receive. Let every bee-keeper, then, proffer service at once. Then the committee can select, by lot or otherwise, from counties where more than two offer. Surely bee-keepers will be prompt and generous. We ought to have a good corps of correspondents from each State, and one, at least, from each county in those States, where bee-keeping is an important industry.

The Commissioner will send out blanks to fill out. The nature of these, as to how bees wintered; what per cent of a full crop of light honey in June and July was secured in four sections? what per cent of a full crop of autumn honey did four secure? what honey-plants are valuable in four sections? etc., will be considered later by the committee. Now for volunteer reporters. Will other bee-papers please copy? By order of committee.

A. J. COOK.

Agricultural College, Mich., Mar. 1, 1888.

HOW FAR WILL BEES GO FOR HONEY?

60 LBS. OF HORSEMINT HONEY PER COLONY, TAKEN BY ITALIANS SIX AND EIGHT MILES AWAY.

THIS is a subject that has always interested me, and I have made it a point to gather all the information I could for the last five years. It has been about that long since I learned my A B C in bee culture. I live in the center of what is called the "Cross Timbers," a belt of timber that runs across Texas. Now, where I live it is about five miles on either side to the prairie. I was the first one to get the yellow-banded bees in this part of the country, and, in fact, the only one; and the first year I got them I happened to be about two miles out on the prairie, where the horsemint was in bloom. On looking I found it was covered with bees, and, to my surprise, I found about half of them were of the yellow-banded race. It caused me to watch them, thinking I should find that some of my neighbors had the improved races of bees, but not so. By watching carefully I noticed that they would rise high in the air and make a direct line for my house. I asked nearly all of my neighbors between there and here if they knew of any one who had the improved races of bees, and they said they did not, but that they knew that no one had them but myself. On this occasion my Italians must have flown seven miles for forage.

I have also seen them two and three miles out on the prairie in the other directions,and made the same inquiries, but no one could tell me of any one who had them but myself. To further prove that they will go seven and eight miles, I remember that this year has been one noted for drought; and what rain has come has been only partial showers. In June, when the horsemint was in bloom, every thing here was burned up; but six and seven miles out on the prairie they had plenty of rain in time to make the mint crop splendid; and the truth of it is, I got 60 lbs. of extracted honey to the colony from the mint last year, and the evidence seems to be that they get it six and eight miles away. While the bees were gathering this amount there was hardly a bloom of any kind to be found nearer than six miles of my place. It was so dry in this neighborhood that all vegetations had parched up. Now, then, friend Root, I think this proves pretty clearly that bees will go six and eight miles to gather honey.

L. B. SMITH.

Cross Timbers, Texas, Feb. 2, 1888.

Friend S., we have before had good evidence that the bees will, under some circumstances, work six or eight miles. I have been satisfied for some time they *could* go this distance and back; but I am not yet satisfied they can work profitably much more than half as many miles; and in our locality I have never known the bees to work fairly where their stores were more than about two miles from the apiary. I presume that, over a prairie or over water, they would fly a longer distance. No doubt if the prevailing winds were in such a direction as to blow toward their hives from the pasturage this would be an additional help. Now, would it not have paid you well to move your bees to a locality where the horsemint was yielding plentifully?

WHAT TO DO, AND HOW TO BE HAPPY WHILE DOING IT.

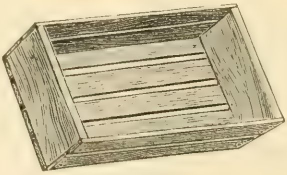
Continued from Feb. 1.

CHAPTER XLVI.

Better is little with the fear of the Lord, than great treasure and trouble therewith.—PROV. 15: 16.

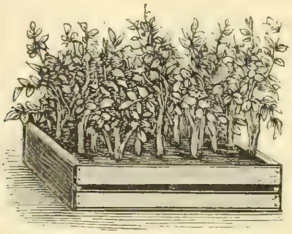
At the bee-keepers' convention in Utica, N. Y., Jan., 1888, as usual I set out during the intervals of the sessions, in search of greenhouses. The weather is much colder in Utica than in Ohio; but notwithstanding this, I found there some of the most beautiful greenhouses that I have seen in any part of the United States. The floral houses especially contained the most beautiful show of orchids that it has ever been my fortune to see anywhere. Passing through one of the main streets, my eye caught a glimpse of azelias that, it seemed to me, surpassed any thing I ever before beheld anywhere. The young man who owned the neat glass structure, I was informed, took it up at first in a sort of amateur way. He had been in the grocery business; but he loved flowers, and, without instruction, except such as he managed to pick up, he gradually worked into the business. Some of the old heads laughed at him, especially the old-countrymen, who do not believe very much in self-made men in that line of business. This house showed to me more real life and activity than any other one I found in the city. There was no rubbish in any corner, nor any plants occupying valuable space that gave no returns. Every thing was bright and fresh, and either fit for the market, or making rapid progress in that direction. There was one little tree-like specimen of *azelia Indica* that so much pleased me I paid the man two dollars for it, without hesitation. It was taken to the bee-convention, and graced the president's table until the session closed; and then right in the midst of zero weather I brought it all the way to Ohio, placed it before our factory hands at the noon service, and after that for two full weeks it was the life of our household, and fairly made the bay-window shine. These beautiful plants are made to bloom in winter by letting them have a little natural winter, and then an artificial spring.

It was not *flowers* I particularly sought, however, nor did I care to see *expensive* greenhouses. One of the seedsmen mentioned that a young man had a little greenhouse in the outskirts, where he raised celery-plants, and I felt as if I could not go home without seeing this. When I made inquiries I was told that it was a little bit of shanty, and did not amount to any thing. But this only made me the more curious. We found him finally; and in the same part of the town there was quite a number of little bits of greenhouses, owned by boys or old men, who whiled away the winter days in raising plants. The one I wish to speak about was a room perhaps 12 x 15 feet. The roof was of glass; the sides of boards, without very much protection, unless it was the deep snow that banked it all around. Inside we found a boy, perhaps ten years old, pricking out the celery-seedlings into little boxes, which were occupying every bit of available space, almost, and were vieing with each other for every bit of sunlight. The room was warmed by an ordinary coal-stove. In one corner a hen was kept, and the chickens were making themselves happy chirping around beside the plants. They especially enjoyed stealing lettuce whenever the boy's attention was so much taken with his plants that he forgot about them. This boy sifted the rich black loamy soil, and put it into boxes, smoothed them off, and put out the plants, with the gravity of an old gardener. My heart began to rejoice over the materials for thought scattered about, perhaps almost as much, but in a different way, from what they did in the large expensive greenhouses. One of the things that especially pleased me was the plant-boxes. They were made entirely of ordinary lath, and little bits of oblong square boards. Suppose I give you a picture of one:



THE PLANT-BOX I SAW IN UTICA.

To make such a box, take two pieces of ordinary lath, which can be bought anywhere for 15 cts. per bunch of 50. Cut each piece into four lengths. This will make eight pieces. You now want two bits of board for the ends, of such a size as to leave just such a space between the lath as I have shown. Nail it up, and your box is done. Our Utica friend used whole laths; but as soon as I got home I found that, by splitting a lath with one of our thin buzz-saws, we could make the whole box from a single lath. For additional strength, with slender wire nails of the proper size, nail the corner laths at the bottom, one into the edge of the other. This makes a box amply stout enough, and yet very light. After I had questioned the boy some, the father came in; but he was, in fact, but little more than a boy himself. He explained that these little boxes were usually sold with the plants; and as an illustration he reached up and took down one of the boxes containing twelve tomato-plants, perhaps six inches high. I have tried to have our engraver make a picture of the box containing the plants. He is not as good on making tomato-*plants* as he is in making boxes, as you will notice.



A DOZEN TOMATO-PLANTS IN A BOX.

Said I, "My friend, how much do you get for a box full of nice plants like that?"

"Twenty cents."

"Only twenty cents? Why, that will hardly pay you for your boxes."

"Oh! yes, it will. I only wish I could get plenty of orders at *that* price. You see, the children make the boxes, and we get a good many of them back again, so they do not cost very much."

"I suppose you raise these chickens just for the fun of it."

"Oh, no! There is a man in the city who sells boiled eggs, and he keeps a hen and chickens in the show-window, to advertise the eggs. Everybody stops to see the chickens in the middle of winter, and that calls attention to his boiled eggs and lunch-room. Last Easter he paid me fifty cents apiece for some little chickens, to advertise his Easter-eggs."

"Well, my friend, I am glad to see there is one individual in the world who has discovered it possible to start celery-plants in winter. How many plants can you raise in this little building, say between now and the time to put them out?"

"Well, I don't know exactly. Last spring I sold 100,000 plants, besides planting out about 50,000 myself."

"Of course, you get celery in the market before anybody else; now, what do you get for the first celery?"

"The first celery I raised last spring went to Kalamazoo, Mich."

"Kalamazoo, Mich.? Why, can't they raise celery there as soon as you can away up here in the cold?"

"Well, it seems they did not last year. You see, there was a couple there that got married, and they wanted some nice White Plume celery; but as it could not be found, somebody telegraphed me for it. Of course, I got a fancy price."

"Well, I declare, the next thing will be that a couple can't get *married* without White Plume celery. Well, well! we will not object to the fashion, so long as they let us raise the plants and furnish the celery, will we, friend?"

Now, then, boys, here is an idea for you. You can get right at it now and make boxes; and when it comes time to sell plants, show your friends and neighbors fine specimens of transplanted plants in these very boxes. Or, if you choose, leave them for sale at the groceries or plant stores. Look after them yourself personally, and keep them watered and looking fine, and you can make a nice little sum of money between now and the first of June. Who would not give five or ten cents more for a dozen plants ready to pick up and carry right home, when put up in this style? You can put more than a dozen plants in a box, with celery, peppers, and a good many other kinds that do not need the amount of room that a dozen tomato-plants do.

Now, the point that pleased me particularly in the above little incident is, that it shows how we can not only find work for ourselves on all stormy days, but we can take the children out of mamma's way and have them helping pay family expenses. What more beautiful sight can you think of than to see a father enjoying himself with his plants, and his children working by his side, and acquiring skill at the same time that they are earning money and keeping busy? Only last Saturday our boys were taking seedling cabbage-plants from the greenhouse, and putting them into cold frames outdoors. Our boy Huber was greatly interested in the proceedings. We spaced them equal distances by means of the frames of poultry-netting described in Chapter IX.

Each boy had a stick sharpened to a point, something like a leadpencil. Huber watched them as they whittled their sticks, preparatory to commencing their work, then borrowed a knife of one of the men (his own knife was lost, just as you might expect would be the case with any boy four or five years old), and whittled a stick which was almost a fac-simile of theirs. Then he wanted to know if he couldn't help set out plants. I gave him instructions, and he worked very busily the greater part of the afternoon. Now, when I come to look at my plants to see how they are doing, he is greatly interested in noticing that *his* cabbage-plants are growing just as well as the others, although we have had almost zero weather since they put them out.

At another place in Utica we found a beautiful lettuce-house. The father was away when we called; but a boy of twelve or fifteen showed us all over the house, and told us all we wanted to know about it. He himself transplanted the plants, and had pretty much all the care of them. He showed us one place where they got seed that was not true. They meant to have Black-seeded Simpson; but their seedsman, by some inaccuracy, gave them a lot of seed that produced several varieties of mongrel plants. Their time was wasted, and the valuable space under the greenhouse sashes was also gone to waste by carelessness about the seeds. I tell you, my friends, you can not afford to take any risks on poor seed for greenhouse work. In this same greenhouse a couple of urchins were having a gay time doing—what do you suppose? Why, by blowing soap-bubbles. The family home was small, and no doubt mamma was greatly relieved to have her children away for a little spell. Although it was a fearfully cold and stormy day outside, these little ones had thrown aside their outer clothing, and sat bareheaded with their sleeves rolled up, having a big time in the bright sunshine that struggled through the blasts and storm-clouds of winter. Who would not have a greenhouse for the children to play in, even if for nothing more? Some of the little greenhouses I have mentioned before, that we found in the outskirts of Utica, didn't cost five dollars, all told. In fact, I could build a *better* one for five dollars; yet in these rude, homely structures they produced some very nice and beautiful plants. The stove to warm the greenhouse might cost five dollars more; but if it be bought at second hand from the pile of old iron to be found at almost every stove-dealer's, one that does not cost over a dollar might answer the purpose very well. Mr. W. A. Treen, who owned the celery-plant house, informed me that one stoveful of coal, put in at six o'clock at night, would keep the plants perfectly safe until nine o'clock the next morning. Of course, the coal was banked and arranged specially to keep a long while. The pipe passed with several turns just high enough to be out of the way of the head, so that most of the heat was given out before the smoke passed into the open air.

CHAPTER XLVII.

Give instruction to a wise man, and he will be yet wiser.—PROV. 9: 9.

Dear friends, we are approaching the close of our book; and as nearly two years have elapsed since my first chapter was written, I thought best in this chapter to make somewhat of a review of the chapters that have gone before. Some of the things I then wrote I wish to modify a little; and other things have pleased me so well that I wish to give them additional emphasis.

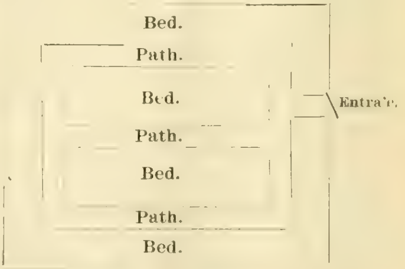
In Chapter VII. I had considerable to say in regard to earth-closets; and in the same chapter I suggested the plan proposed by father Cole. Well, now, although the plan answers excellently so far as disposing of the refuse matter is concerned, especially when we have plenty of rain, it has not answered completely to my satisfaction in carrying the sewage, etc., to our growing plants. Deep-rooted plants, clovers, parsnips, and rank-growing vines, seem to get down into the reservoirs, and flourish finely. We have been especially pleased with a row of rhubarb-plants placed directly over a series of reservoirs near one of the out-buildings. But for our factory, we have come back to the plan suggested in the fore part of Chapter VII., dry dust, and carrying it out, say once every two weeks, to be forked into the compost-heap. We use a large box, or tank, and move the accumulations with a horse.

This puts the material right where it can be worked thoroughly into the soil, for the benefit of the crops; and it does not matter whether we have rain or not for its successful working. The "New Agriculture" has not proved itself proof against two dry seasons. When there is no rain, the reservoirs get absolutely dry, and the ground dries up worse right over them than on ground drained with tile. Letting steam into them, however, makes a steam hot-bed at very little expense; and we employ the exhaust steam from our factory for this purpose every spring, in getting early plants and vegetables. We are still at work with the "New Agriculture," and may still overcome some of the difficulties.

In Chapter VIII. I spoke of sifting the soil for plant-gardens. Well, we have found the sieve pictured at the close of that chapter to be a decided labor-saving arrangement. In many soils you can sift the whole surface of the ground, placing the lumps and debris below, cheaper than you can rake out the lumps in the ordinary way with a garden-rake; and it is ever so much better, because, when this ground has been once sifted it is ever after free from sticks, stones, etc. This, of course, applies to the earth for hot-beds, or beds for raising plants. Where ground is to be carefully worked over by hand, for onions, we think the sieves will do it better and quicker than rakes, especially where the soil is of a peaty nature. The cold frame, pictured in the fore part of Chapter X., still gives excellent satisfaction. We get it full of nice plants every winter, without handling the sash at all, only when we lift them off to get the benefit of the warm rain. Opening and closing the ends answers just as well as raising the sash. In the same chapter I would modify my advice a little in regard to a greenhouse for plants and vegetables. I would also modify the directions somewhat for raising celery-plants, in Chapter XI., as well.

OUR "ANNEX" GREENHOUSE.

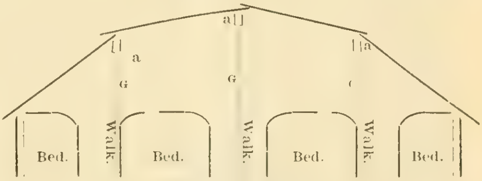
During the past two winters we have been using an addition to our greenhouse, which, for short, we term an "annex." This was made by placing 32 common 3x6 sashes about 4 feet above the surface of the ground. The sashes are supported by strips of pine 28 feet long and 2x6 inches. One of these pine strips runs under the sash where one laps on to the next. These string-pieces are supported at the proper distance above the ground by pieces of old refuse gas-pipe, ¾ inch in diameter. They were driven into the ground with a sledge to the proper distance, then the sticks were laid on the end of the pipe. To keep it from rolling we bored a hole into the stick so as to let the pipe go in a couple of inches. We prefer the gas-pipes to wooden stakes because they will not rot, and also produce less shade in the house than wooden posts. At the northern end of the house is a door to open and close, like the gable end of the cold frame mentioned in Chapter X. This allows us to get all the ventilation we want, without moving a sash at all. Well, now, for economy and convenience these sash are placed about as nearly level as ordinary hot-bed sash, or perhaps nearer. In fact, they have just enough fall for the water to run off. The only inconvenience we found is from the drip; but even this does no harm, unless during very heavy rains, when it washes the dirt from the roots of little plants. Celery-plants seem to be exactly suited with the drip; and the more drip, the better. They also grow very well in partial shade. Well, with the sash only 4 feet above the surface of the ground, no one but a boy would be able to stand upright. To remedy this, the ground under the sash is divided off into beds, and between the beds are narrow alleys for the workmen. The alleys, or paths, are sunk about 1½ or 2 feet below the surface of the beds. This gives us from 5½ to 6 feet between the bottom of the path and the glass overhead. If you are so fortunate as to be an individual of moderate height, you can move quite comfortably in this place; but if you are a tall man, you will have to make your paths deeper; but, remember, you will need to get the surface of your beds as near the glass as you can conveniently, without too great expense. To our surprise, we found these beds the handiest and easiest for working among plants of any thing we have ever tried. Every one of us has been astonished to see with what facility we can transplant celery, cabbage, tomato, etc., in our "annex." We first make beds 2½ or 3 feet



BIRD'S-EYE VIEW OF BEDS AND WALKS.

wide, clear around the whole outside. The diagram on p. 210 will give you something of an idea of this.

For convenience in working we have the dirt slope from the path up as it goes outward toward the wall; that is, where the beds come near to the walls of the building, the soil rises up within about one foot of the glass along the eaves. As you stoop over and reach toward the further side of the bed, the slope makes it face you, as it were. This same slope catches the rising sun on one side of the house, and the afternoon sun on the other side of the house. The sides of the bed next to the path are made by driving in stakes and setting down wide pine boards. You can get a grade of cheap pine boards at almost any lumber-yard, 18 or 20 inches wide. If you want the beds 2 feet high, perhaps you had better take 2 twelve-inch boards; but two boards are not quite so handy, nor do they look quite as nice as one wide board. The boards must be kept from being pressed outward into the paths by the pressure of the earth, by stout oaken stakes driven well into the ground, say once every four or five feet. Let them slope a little toward the bank of earth, so that, if they get pressed outward it will tend to bring them perpendicular instead of over into the path. Now, the central beds are like a long wagon-box; and to keep the box from spreading, as mentioned before, by the weight of the soil, you can put a strip across from one of the oak stakes to the other, having the strip low enough down so that you will not strike it in forking up the beds. I would have these central beds perhaps five or six feet wide; for you can reach to the middle on one side, and then go around to the other side, and reach across where you left off. We have found, however, that a bed five feet wide is much more convenient for working. The only objection to having them narrower still, is, that every foot of space under the glass costs money, and we must economize all we can. On this account it is well to make the beds as wide as you can manage to work them; and the paths should also be as narrow as will answer. Ours are made sixteen inches wide; but we have found, by experiment, that one can get along very well with a path only a foot wide to work in. As the sash only just clears your head, if you are in danger of toppling over in consequence of a path so narrow, you can steady yourself by putting your hand on a sash-bar. The soil in these beds is never to be tramped on at all. It is sifted so as to be light and soft; and when you are sitting down on the bed, putting out plants, always sit on a wide board. This firms the soil just right for the plants, and does not pack the ground as it would to step on it. It order to give you a clear idea of the arrangement, we submit below a transverse section of the house from east to west.



GREENHOUSE FOR RAISING PLANTS AND VEGETABLES.

You will notice that the roof is very much after the fashion of the asparagus-house pictured in Chapter XXXVI. The outside sashes have a middling strong slope; but as we are stooping over when we are working on these beds, it does not matter very much.

You will notice that I have shown the central path nearly twice the width of the others; this is on account of the gas-pipe supports coming right in the middle of the walk. I don't quite like this; but where the sash is so low that it only just clears one's head, I do not know how else to fix it. The letters, a, a, a, represent the ends of the pine string-pieces; G, G, G, are the gas-pipe supports. In practice, the beds are not rounded up quite as plump as they show in our diagram. There are six gas-pipe supports in the whole structure—two under each pine stringer.

None but one who has tried it can imagine how much nicer and easier it is to work in this than in a greenhouse where the beds are away up high. Yes, it is much handier than beds that are three feet from the ground—especially so in transplanting seedling plants. A walk 18 inches or two feet below the surface of the bed is just about right to give room for your feet; in other words, the surface of the bed is just the right height from the bottom of the path to allow you to sit down comfortably and easily. You can change around on your wide board from one side to the other. No matter what the weather is, you are out of the cold wind and air, while you have every bit of sunshine that is to be had. Furthermore, the labor of caring for the plants is nothing, when compared with that of boxes and flats, so often recommended. When the sun gets well up, your boxes will dry out every day, so as to need watering every night. If you ever had charge of a hundred thousand plants in boxes you know something about the labor of watering. Well, these beds of earth, when well soaked with water, will keep wet enough to grow well for a long while. In fact, our annex is a rather damp place when we have many cloudy days without sunshine. To avoid dampness and wet, the ground should be *most thoroughly* underdrained before your house is builded. How about the heating arrangements? do you ask? Well, so far we have not had any heating arrangements at all, except that, through the middle of our annex, passes a steam-pipe about a foot below the bottom of the paths. This pipe goes over to our dwelling-house, and *happened* to be just under our plant-house. There is one other means of keeping the temperature from freezing. This annex adjoins our factory basement, and three windows open from the basement into the annex. These windows have been open all winter long. The large bulk of air in the basement, by changing constantly with that in the annex, keeps the temperature of this glass structure constantly above freezing. At least, there has not been frost enough to injure any of the plants. During December and January, things did not grow very much, as a matter of course; but the sunny days of February gave us the finest growth of vegetables that I ever saw anywhere. These same windows that connect the air with the basement also prevent any bad effect from overheating. We have grown beautiful lettuce, radishes, beets, etc., on these beds; but the house seems specially adapted to celery. Celery-plants grow right along, even if there is not very much sun; and plants that failed to amount to any thing on account of the drought last season, were gathered just before hard freezing, and placed in this annex. They were put almost as close together as they would stand; and as they grew, earth was banked around them so as to raise the surface a foot or more higher than the ordinary surface of the bed. They bleached out beautifully; and now when there is no celery to be had anywhere else, we are getting 40 cents a pound for our greenhouse celery.

The plant-tube shown in Chapter XLII. is a great help in banking up the celery in the greenhouse. Slip them over the plants, and then with a little fire-shovel sift the earth between the tubes, raising the tubes as fast as the plants grow, and sifting in more dirt. Now, such a house as I have described costs but a little more than ordinary cold frames, and yet you have no handling of sash at all, and you can work with comfort among your plants when the weather would be such that you could do nothing at all outdoors.

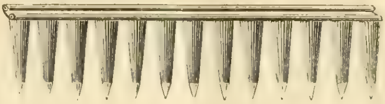
If it should be desired to have artificial heat by means of steam-pipes or hot water I would suggest running the pipes above the center of the beds along under the sash. The asparagus-house I have already alluded to was warmed by stove-pipes running quite a long distance under the glass in this way. With steam we can arrange the pipes in such a way that they will not cross the paths overhead at all; and this is desirable, to avoid bumping one's head. When it is necessary to cross a path, take the steam-pipe down under the path. The question then arises, Does this answer as well as bottom heat? The heat of the sun is always from overhead; and a writer in the *American Florist* has recently stated that he has obtained good results from steam-pipes running overhead. He says the plants turn so as to face the steam-pipe, just as they face the sun. The objection may be made, that this arrangement does not bring the plants as near to the glass as where they are on benches, say three feet high. To which I reply, that plants that must be so close up to the sash can be put on beds running near to the eaves. The finest lettuce-house I saw at Utica had one of the central beds clear down on the ground; in fact, it was a bed of ground such as I have described, and not a bench at all. Well, the lettuce on this bed was ahead of any of the rest; and the boy who showed us through said they always got the best lettuce from this bed. It had no bottom heat, for there was no space under it at all—just solid earth.

The question is often asked, "Can not the new plant-bed muslin be used, instead of expensive glass?" It can, when the weather gets to be warm enough—say in our locality about the first of April; but it does not answer at all at any time of the year when you are liable to have heavy snows. The weight of the snow will tear the cloth; besides, cloth will not give nearly as much sunshine as glass; and during windy weather it will flop up and down like a bellows, pumping the outside air out and in continually. It is, however, an excellent thing to shade young plants just as they set out. If your plant-bed, however, is adjoining the cellar of some building, as I have mentioned, by opening connection by windows or otherwise with this cellar you can avoid all danger of having the plants scorched by too much sun, even if you do not happen to be on hand to open the ventilators. If you want the house to warm up, however, by closing the openings to the cellar you can get a very high temperature at almost any time in winter when the sun shines out clear.

SPACING YOUR PLANTS AND SEEDS IN THE GREENHOUSE OR COLD FRAME.

One of the worst leaks you will probably have in the management of your greenhouses or cold frames is this matter I have reverted to so frequently — having little patches of ground lie idle after you have gone to the expense of the structure and fixtures; or, what amounts to the same thing, not having enough plants to fully occupy the ground. Of course, we do not want plants crowded to their detriment; but every square inch should have just as much plant life on it as it can stand. To economize in this way, we plant the seeds quite closely, as I have explained to you; and as soon as the little plants begin to crowd, we transplant them to two inches apart, with a poultry-netting frame. Now look over your young plants often; and as soon as one dies, put another in its place. Keep the plants continually on every inch of space that can sustain a plant; and as soon as the crop is in its prime, remove it and get something else in its place within *one hour*.

It is a nice point in sowing seeds, to get them just thick enough and yet not too thick; and I have long wanted some method of doing this with the mathematical precision with which we transplant with the frames I have mentioned. We have accomplished this, much to my satisfaction, with seeds of tomato-plants; and I propose to try it with others. I have mentioned to you having saved the seed from a single fruit of the Mikado tomato—a tomato that weighed a pound and a quarter, and was away in advance of all the rest in earliness. Well, as these seeds were very precious, we wanted to get a plant from each seed. We accordingly prepared our ground nicely in one of the plant-boxes, and then we made use of the little tool shown on next column.



SPACING-TOOL FOR SOWING SEEDS, ETC.

This implement is really a string of dibbles. We made it by soldering some ordinary tin sap-spiles to a folded bar of tin, as you see. Then a plain tapered piece of steel was soldered in to the small end of each one of the sap-spiles. We tried wood before we used this; but too much of the soil stuck to the wood when it was wet enough. With metal dibbles, if they are kept bright and clean they can be pushed into the ground when it is just right, and each one will leave a nice round hole to put a plant in, or to drop in a seed. The above tool is about 15 inches long, so the plants are just about an inch apart. We first set the tool into the earth along the outside edges of the plant-boxes. This spaces the rows, as you will notice.

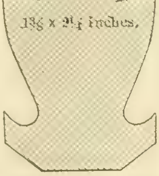
We now go over the ground in the boxes in such a way that we have a series of holes exactly one inch apart each way. Into each hole we drop a tomato-seed, then sift over all a little powdered moss, and then you have it. You may say it takes some time to put one seed at a time into these little holes. So it does; but, my friend, you will have more *nice* plants in a boxful, sown this way, than you ever saw before in your life. In fact, I don't think I ever saw any thing prettier in a greenhouse than this boxful of tomato-plants. They grew in this box only an inch apart until each plant had several large leaves on it. They are now standing in the annex, *four* inches apart each way, and every plant is a duplicate of its neighbor. It is worth something to *me* to have a lot of plants all uniform in size, and *no failures.*

RAISING ONIONS IN GREENHOUSES.

Until recently we have almost every year had a lot of onions that spoiled because they got soft, or began to grow before the time to put them out in the spring. For a time we did not know of any use we could make of these, except to feed them to stock. About a year ago, however, Mr. Weed tried some of these in a deep box in the greenhouse; and as fast as they would shoot up in search of the light, he banked them up with peat, very much as we bank up celery. The consequence was, that in a very brief period of time we had long green onions, bleached white like celery. These were tied up in quarter-pound bunches, and put on the wagon. During January and February they sold rapidly, and we not only got rid of all the soft and growing onions we had in our stock, but we used our sets that began to grow, and all of our old onions of every description. Any thing in the shape of an onion with a sprout to it can be turned to profitable use in this way. While at Columbus last winter, in visiting one of their vegetable-greenhouses I found the gardener doing exactly this very thing. I do not know where he got it, for I supposed that Mr. Weed was original in the idea. The *nicest* kind of onions for this treatment, however, is what Gregory calls the Egyptian, or winter onion. One of these onions, by giving it a little more time, will make a *whole bunch* of sprouts, and they will grow to much larger size than any common onion. Perhaps I should explain that these onions raised in greenhouses are not expected to form bulbs, but only long green shoots. They also seem to do rather best where the box is placed over the steam-pipes; but as they do not require any light of any account, the whole process may be carried on under the ordinary benches. At this writing, March 8, our third crop of onions is nearly ready to sell, from the same box. The box is perhaps 2 feet wide, 12 feet long, and 18 inches deep. The onions are set in the box, with about two inches of earth under them, and as near together as they can be squeezed together. The ground under them is made very rich with guano and stable manure.

I have before mentioned the dripping of water as an objectionable feature to greenhouses with the roof almost flat. In our annex, for instance, if we go in while it rains hard, or attempt to work during rain, one must expect to have water dripping down the back of his neck every now and then. Well, there is a remedy for this state of affairs. The remedy is, however, most easily applied where, instead of loose sash, we have a structure that takes sash-bars from the ridge to the eaves. These sash-bars are made as shown in the adjoining cut.

These sash-bars can be purchased for $2.00 per 100 feet, made of clear cypress. They are made by John L. Diez & Co., 530 N. Halstead St., Chicago, Ill.



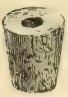
SASH - BAR FOR GREENHOUSE.

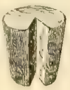
You will observe that the channel in the sash-bar, just under the glass, carries all the water outside the building to the eave-spout. As these channels are liable to fill up, however, in cold weather, it is better to have a conductor just inside the house, right along under the glass, close to the outer wall. The drip may then be carried into a cistern, and used to water the plants. Now, this takes pretty much all the drip. There will be some, however, where the panes of glass lap; and I have many times thought it would be a very nice thing if we could shut out the cold air that comes in between the lapping of the glass. This is now done perfectly by two separate inventions. Instead of having the glass lap, the ends are simply pushed up together; that is, each sheet of glass lies on a level with the one beyond it. Now, to make the joint absolutely tight, one of the plans is to put between the edges of the glass a strip of zinc folded like this: \/\ A little soft putty is to be rubbed into the groove in the zinc strip, in each side; then put it between the sheets of glass—a fold of zinc resting over one pane and under the other. Crowd the glass sheets up tight, and your joint is perfect. The other arrangement is by having a strip of zinc folded like the letter T. These strips of zinc are much like the T tins used in honey-boxes for bee-hives, but they are much smaller, however. The T part of the strip goes under both sheets of glass, the tongue going up between them. Now, to make all these joints absolutely air and water tight, and, in fact, to make all joints of any kind in greenhouses structures tight, we need to use some thick white paint in an oil-can, as directed by Peter Henderson. By means of the oil-can run a slender stream of paint where the glass touches the wood, and also where the glass touches the zinc. Before the paint has time to get dry, blow fine white sand into the paint by means of one Woodason's insect-powder bellows.

This paint and sand together, by some mysterious law of nature, form a cement harder than the hardest stone; in fact, it seems to me almost as hard and impervious to water and frost as the glass itself. The process is invaluable in patching up old greenhouses. Fill the joint, or crevice, with plenty of thick paint, then blow in the sand; and when it is thoroughly dry it seems as if nothing could get it loose. Never put any putty where it is exposed to frost and dampness, but use paint and sand instead. The zinc strips, bent in the form of a letter T may be procured of the Cleveland Window-glass Co., 130 Champlain St., Cleveland, Ohio., and the other style of strips is furnished by J. M. Gasser, 101 Euclid Ave., Cleveland, O.

HEADS OF GRAIN
FROM DIFFERENT FIELDS.

HOW TO FEED BEES IN WINTER, WITH A BOTTLE.





I HAVE not had much experience in the business, but I think a very easy and good way to feed them in the winter is to take a bottle, a pint or quart, or any size will do. Make a syrup of sugar or honey; don't have it too thick; put it in the bottle; have a small hole in the cork, in the center or along the side, just large enough so that, when the bottle is inverted, the syrup will drop out very slowly. If it drops too freely, put a strainer of thin muslin or cheese-cloth over the cork before pushing it in. Place the bottle (inverted) right above the cluster; pack the chaff or quilts around it; or if only a board is over them, bore a hole in it large enough to receive the neck of the bottle. Bees are much like pigs—if they can get at it they will eat up almost any quantity of syrup in a few hours. But in getting it drop by drop, a pint or quart will last quite a while. I had a 1½-pint bottle over a colony, and it lasted ten days. Then, to satisfy my curiosity, I examined it one mild day and found they had stored away quite a good deal of it in the combs.

Coopersdale, Pa., Feb. 15, 1888. D. A. HARRIS.

Although your device is not exactly new, friend H., I do not know but that it is just as good as any of the more expensive feeders. The objections are, that a single hole is more liable to get filled up, so your feeder may fail to do its duty, and let a colony starve. If the opening is carefully arranged, however, this is not likely to happen.

BEES STEALING WAX AWAY FROM GRAFTS.

Last spring I set some grafts near my apiary. Soon after, I noticed that the wax had all been removed. I again waxed them, and the next day I found the bees carrying off the wax at a lively rate. I then covered the wax with cloth, and that prevented further damage. I have put in grafts near my bees in previous years, but never experienced an attack of this kind before.

THE RESULT OF TAKING A QUEEN AWAY IN THE FALL.

In this part of Pennsylvania we expect a late crop of honey from buckwheat and red clover, which I usually leave on the hives till I prepare them for winter. When doing this work last fall I found the queen of one colony in the surplus box when I removed it to the honey-house. The bees refused to return to their hive; they strove hard to protect their stores, and, when driven out, clustered on the wall like a swarm. In a case of this kind, if the queen is not returned the colony is ruined. As this is the third case I have known, I concluded others might be benefited by my experience.

Shaw's Landing, Pa. J. M. BEATTY.

Friend B., I have seen bees at the very trick you mention; and I have sometimes wondered if the varnish, paint, wax, resin, and other kinds of gum they seem so eager for did them any good, or whether they did it just for the fun of the thing, something as they carry sawdust in their hives, in the spring. I do not know of any real use they can make of wax, unless it is to stop up cracks and crevices, and make their hives warmer. But why should they want to do this in the spring? Will you please tell us just what month, and what day of the month it was, as nearly as you can, when you saw the bees getting the wax? It certainly is very important that the queen be not removed when taking in honey from the top of the hive. Friend Boardman's bee-escape, illustrated on page 200, obviates all danger from such catastrophe. I have known queens to be removed with the surplus arrangements a great many times, and I think, too, when no eggs or brood was found in said surplus arrangements.

THE ELEMENTS OF POLLEN.

In GLEANINGS, page 124, Prof. Cook answers the question: "What are the chemical properties of pollen?" The chemical composition of different kinds of pollen is certainly different. Von Planta examined the pollen of *Corylus avelana* (hazel) and *Pinus sylvestris* (a pine-tree) and found:

	Corylus.	Pinus.
Water	4.78%	7.66%
Nitrogen	4.81	2.65
Albuminoids	30.06	16.56
Ashes	3.81	3.30
Hypoxanthine	0.15	0.04
Sugar (cane)	14.70	11.24
Starch	5.26	7.06
Coloring substance	2.06	—
Cuticula	3.02	21.97
Wax-like substance	3.67	3.56
Fats and oil	4.20	10.63
Resin-like substance	8.41	7.93

I remark, that hypoxanthine is a substance found in muscles of horses, cattle, and hares. Cuticula is the indigestible part of the pollen—shells or cell-walls. We see that Prof. Cook is correct if he says pollen is richer in albuminoids, than oats or wheat, and it is remarkably rich in sugar too. I intend to write about the other questions, in which I do not quite agree with Prof. Cook. L. STACHELHAUSEN.

Selma, Texas, Feb. 22, 1888.

FOUL BROOD IN THE VICINITY OF OUR APIARY.

Please tell me if there are any cases of foul brood in your vicinity besides in your own apiary. Was there any spreading of the disease by shipping bees from there last year? G. M. SHAVER.

Fairfax, Mo., Mar. 1, 1888.

There is not a single case of foul brood anywhere in our vicinity. We have carefully examined all the bees round about; and two colonies kept right across the street, belonging to Mr. Calvert, were perfectly healthy all the time we had the foul brood. All the bees sent out by us last season were furnished by Neighbor H., whose apiaries are more than two miles from ours. He has never seen a single cell of foul brood in any of his, and none of our customers have reported any foul brood in any that Neighbor H. sent out. There is one thing, however, that I prefer to mention: Early in the spring last year, we felt so sure that no more foul brood was going to start out with us, that we filled a few orders. As soon as we discovered more traces of it, however, we stopped at once. Well, one of these orders, filled from our own apiary early in the spring, did carry foul brood to a distant locality. The purchaser was at a distance from any other bees, and we instructed him to burn up every thing at our expense, as soon as we were informed of it. We prefer to make this statement to the public, that our friends may know what their chances are in sending us their orders. We shall not commence sending bees or queens again from our own apiary until we have waited a sufficient length of time to be sure that foul brood is not going to break out any more.

WHEN AND HOW TO MAKE NUCLEI.

As I failed in my efforts at queen-rearing and making nuclei last spring, I desire to avoid a repetition of the failure this spring; hence I ask you the following questions:

1. In making nuclei, how do you prevent them from returning to the old hive?

2. What season of the year, all conditions being favorable, do you consider best to start them?

I understand the process of getting the queen-cells ready; but after placing them in the hive, the bees all return to the old colony. D. B. BUTLER.

Fort Branch, Ind., Feb. 11, 1888.

Friend B., we have no trouble, providing we take along two or more combs well filled with brood and well covered with bees, mostly young ones. This last point is accomplished by removing the combs when the older bees are mostly in the fields. Friend Doolittle takes the queen along with them, and leaves her long enough for the bees to be reconciled to their new home. In this case you can keep nearly every bee, old and young. The very best time of year is when the bees begin to swarm naturally. If you undertake it at any other season, it will be more apt to be a failure.

CAN A FEW BEES BE KEPT ON A SMALL TOWN LOT, AND NOT BOTHER NEIGHBORS?

I am now clerking in the headquarters of the Burlington & Missouri R. R., in this city, and work from 8 A. M. until 5 P. M. I live in the city, and rent a place. I have a lot about 40 x 40 feet on which I could keep some bees. Of course, there are houses close by. Do you think if I got a colony of your purest Italians that they would bother the neighbors? and do you think it would pay me to keep them here, and raise comb honey for the market? There is a great deal used in this city, and I wish very much to keep bees. Do you think a woman could care for them while I am at the office? There are several trees in the yard, so they could alight when they swarmed; but I should be safer to clip the queen's wings, I presume. W. H. PRENTISS.

Omaha, Neb., Feb. 23, 1888.

Friend P., there would not be a bit of trouble in keeping one colony of bees in such a location as you mention; nor will there probably be any trouble in half a dozen or even a dozen colonies; but when you get up to forty or fifty, somebody will be annoyed, and will find fault. Almost every objection, however, can be met, except the one of the bees soiling the clothes on wash-days in the spring. This is quite a serious matter, and I do not just know how to get around it. There will also be trouble during droughts, from the bees getting into houses during the time women make preserves, etc.—A woman can take care of four or five colonies very well. If she has strength, and likes the business, she may take care of a dozen or more. It depends on the woman and the will, you see.

NOTES AND QUERIES.

HONEY-BOARDS; CAN WE KEEP POLLEN OUT OF THE SURPLUS DEPARTMENT?

WILL your zinc queen-excluding honey-board keep bee-bread out of the upper story? Our lower story is an old Langstroth with the Simplicity let down until it rests on the frames below. How can we manage to get a honey-board to work between the two? How can we get a bee-space below? HALLETT & SON.

Galena, Ills., Feb. 22, 1888.

[The queen-excluding honey-board will not keep pollen out of the surplus apartment, although it will discourage the bees from carrying it above, to a certain extent. Pollen is usually stored above when the brood-nest is contracted too close. Contracting should not ordinarily reduce the brood-chamber to less than three-fourths of its former capacity. It is a difficult matter to get a honey-board to fit the brood-chamber of one hive and yet work satisfactorily in connection with the upper story of another hive of a different pattern. To make a bee-space, lay ¼-inch strips on the end of the brood-frames and lay the honey-boards on top; that is, unless a bee-space is already provided for. Probably the best way to remedy the matter is to have hives all of one pattern. Our honey-boards are adapted to any of the hives we make, but can not very well be used in a hive of the old Langstroth pattern.]

How can I keep worms out of my hives?
MRS. T. W. LANGLEY.

Scotland, Md., Feb. 23, 1888.

[The difficulty you speak of will be very quickly remedied if you Italianize your apiary. In Italian apiaries the moth worm is unknown as a pest.]

Thanks for remarks relating to light in the cellar. The 48° on the 18th did not induce the bees to stir in the cellar, while a temperature of 40° in the shade, with sunshine, gave them a fly. T. F. BINGHAM.

Abronia, Mich., Feb. 20, 1888.

The "trick" you speak of in foot-note to question 35 was tried here about five years ago. A hive was placed at the end of a row. The bees went into it. Brood was supplied, and a nice colony produced. J. M. BEATTY.

Shaw's Landing, Pa.

JAPANESE BUCKWHEAT.

I sowed 5 cents' worth of Japanese buckwheat on the 12th of June, and very thin. My turkeys and chickens ran over it until it was cut, and must have destroyed nearly half of it; but after thrashing and cleaning I had 35 lbs. J. AUGUSTINE.

Whitehall, Wis., Feb. 29, 1888.

LIGHT IN CELLARS DELETERIOUS.

I will now tell you what I have to say on wintering in light cellars. This fall I put one colony in the cellar where it was very light, and they have been very uneasy so far. Great numbers came out every day, and of course they could not get back again, and have died. I think the dark cellars are superior to light ones for this reason. Since I have been taking GLEANINGS I have been very much pleased with it. I like Our Homes very much.
G. C. ALLAN.

Churchill, Ont., Canada, Feb. 25, 1888.

How can we prevent the bees from building the combs together? **DANIEL HOKE.**

Goshen, Ind., Feb. 22, 1888.

[To prevent the bees running brace-combs between the upper and lower set of combs, use a slatted honey-board. To prevent their bracing together in the brood-chamber, space each comb so that there is a distance of from 1½ to 1⅜ from center to center.]

My hives are made for 9 frames. How many frames should be put in the top story for extracting? I have usually put in 8. Our honey-flow lasts about three weeks. **R. ROBINSON.**

Laclede, Ill.

[For extracting, I should fill the upper story full of frames. It may be an advantage sometimes to contract the lower story to 6 or 7 frames.]

WILD-BUCKWHEAT HONEY.

I do not want to give up GLEANINGS. I need its valuable suggestions in the pursuit of bee-keeping. I have in winter quarters 51 swarms, which are resting from their summer's labors. I secured considerable wild-buckwheat honey last fall, and some the season before. Our winter has not been as cold as usual for the time of year. **A. D. SHEPARD.**

River Falls, Pierce Co., Wis., Dec. 22, 1887.

THE JAPANESE BUCKWHEAT YIELDED AT THE RATE OF 150 BUSHELS TO THE ACRE.

The Japanese buckwheat I got of you (I have not yet cleaned it, for it is in the chaff) I think yielded at the rate of about 150 bushels to the acre, while the common kind, sown in the same field, did not yield any thing. I did not harvest it. If I could not get any more of the same kind I would not take 25 dollars for what I have got. **NELSON HOLT.**

Prairie Depot, Wood Co., O., Jan. 30, 1888.

MORE ABOUT THE ALLEGED BEE-BAIT SO DESTRUCTIVE TO BEES, AS RELATED ON PAGE 99, FEB. 1.

I see that a correspondent from Pittsburgh wrote that a farmer from Kittanning told him that the bees had been poisoned by bee-bait within 30 or 40 miles around Kittanning. In answer to that I will say that I live 13 miles from Kittanning, and have 23 colonies of bees in good condition, and I have not heard of any bees being poisoned in this neighborhood. Bees made very little honey in this locality last summer; but mine are wintering well on summer stands. **S. YINGST.**

Sydney, Pa., Feb. 23, 1888.

FEEDING IN EARLY SPRING, AND HOW TO DO IT.

I have four swarms of bees in good frame hives, and they need feeding. Would you put them in the cellar, or leave them on their summer stands? What is your method of feeding? **F. BASSETT.**

East Kendall, N. Y., Feb. 23, 1888.

[I should leave the bees where they are. At this time of year you can give them bricks of granulated-sugar candy, according to directions given on page 220.]

HOLY-LAND BEES.

Please let me know if you have any Holy-Land queens on hand. If so, what is the best you can do on one, as I lost the one I got from you in July, 1886. There are plenty of bees and stores in the hive.

Waynesburg, Pa., Feb., 20, 1888. **B. F. WALLACE.**

[We do not handle the Holy-Land bees any more. The progeny of a pure queen is so vicious and otherwise undesirable, nobody seems to want them. We don't know any one just now who furnishes them. We presume, however, you can get them of D. A. Jones, Beeton, Ontario, Canada. See also advertising columns of this journal.]

OLD BEE-LITERATURE FREE OF CHARGE, TO THOSE WHO WILL PAY THE POSTAGE.

I have a box full of old bee-literature which I think ought to be a source of pleasure to some one during these winter months. To the enthusiastic boys and girls or adults who feel that they can not afford bee-literature, I will send, out of this stock, a reasonable amount to each one who may send the postage. Orders to be filled in rotation, and as my time will permit. Postage will be returned to those whose orders can not be filled. Give address correctly and distinct. **GEO. F. GRAFF.**

2518 Cap. Avenue, Omaha, Neb., Jan. 21, 1888.

BEES FLYING OUT WHEN THE MERCURY IS SIX BELOW ZERO.

Bees fly at six below freezing. Can you account for it? Feb. 14, bees had a fine fly. That night the mercury went down to 12 below freezing. Feb. 15, about 12 o'clock, I was out about the hives, and saw about 25 bees come out of a strong colony, fly away, and never return. The mercury was six below freezing. **W. J. GORE.**

Bloomfield, Ky., Feb. 22, 1888.

[The reason of your bees flying out when the mercury was below freezing was because they were affected with dysentery, and the whole colony doubtless was more or less uneasy. Those bees the most affected fly out, cold or no cold. We have observed bees doing the same thing; an examination of the colonies generally shows that they are affected with dysentery.]

FOUNDATION MADE ON FINE WIRE NETTING.

In a German bee-paper I see that they sell foundation on fine wire netting, and also on gauze (about like mosquito bar). I drop you these lines hoping you find it to your interest to manufacture wired foundation, or for publication, that people may see it is not a new invention, and nobody could get a patent on wired foundation. **P.**

Martinsburg, W. Va., Feb. 21, 1888.

[The matter of making foundation on fine wire netting, cloth, lace, and every thing of that description, is very old. C. C. Vandeusen, who advertises in our columns, has for years furnished foundation strengthened by wire; and as a slender wire every two inches answers every purpose of the netting, why go to the expense of the latter? Most of the foundation used nowadays in brood-frames is strengthened by more or less wires; and as netting would only add to the expense, I do not know why it should be considered desirable.]

ALLAYING SWARMING.

Please let me know how to keep my bees from swarming. I have a small apiary of 15 colonies. I want to work for honey instead of increase. **JACOB SCHIEFLA.**

Caledonia, Mich., Mar. 1, 1888.

[Friend S., this matter of prevention of swarms is a difficult one. When comb honey is the object it can be allayed to a great extent (but not necessarily prevented) by giving the bees an abundance of room. The brood-chamber should not be contracted, and the supers should be tiered up so that the bees will not at any time *begin* to be crowded. The queen should also have room to lay, to her heart's content. When the bees find that she has filled all available space they are apt to go where they can get more room for her majesty. The prevention of swarms when extracted honey is the object is not so difficult. I believe E. France, of Platteville, Wis., manages by giving the queen a large amount of room, even giving her access to the second story; and he takes care that the bees have plenty of empty combs for the storage of their honey.]

OUR QUESTION-BOX,

With Replies from our best Authorities on Bees.

All queries sent in for this department should be briefly stated, and free from any possible ambiguity. The question or questions should be written upon a separate slip of paper, and marked, "For Our Question-Box."

Question No. 40.—*Which do you consider to be the more profitable industry—poultry-keeping or bee-keeping? How do you think the two industries go together?*

1. Bee-keeping. 2. Fairly well.
G. M. Doolittle.

1. Bee-keeping. 2. First rate.
Mrs. L. Harrison.

I have had no experience in poultry-keeping.
Chas. F. Muth.

In some localities, poultry-keeping; and in other localities, bee-keeping. 2. Well.
Dr. A. B. Mason.

1. Bee-keeping, emphatically. 2. It depends on taste. We know of enthusiastic apiarists who have no taste for poultry-keeping. Dadant & Son.

I have had no very extensive experience with poultry, but I do not think the two industries would "gibe" very well. W. Z. Hutchinson.

1. Bee-keeping; 2. First rate, for a short time; but one or the other will sooner or later be dropped. They ought to go well together, but generally don't.
Geo. Grimm.

1. Bee-keeping. I think poultry-keeping could be made a good industry in connection with bee-keeping? 2. I don't think either would be in the way of the other. E. France.

I have always found bees to pay better than poultry. The two industries go very well together, especially as both can occupy the same ground. I have always raised chickens in the apiary.
Paul L. Viallon.

Bee-keeping, decidedly. They do not conflict at all. If the poultry-keeper works for winter eggs, as he should, this divides his work well, especially if he rears his chicks in March and April, as he should. A. J. Cook.

1. Bee-keeping. 2. I do not know by experience, but I believe poultry-keeping would go better with bee-keeping, than farming or fruit-raising. My advice in most cases is, to let bee-keeping alone or make it a specialty. James Heddon.

1. Largely a matter of location. Within ten miles of Toledo I should expect the chicken-man to make the most money; but the bee-man will have some leisure winters while the other has not. 2. No man sighs for additional industries when the swarming fever rages among his bees. The combination is possible, and may be desirable to some.
E. E. Hasty.

1. Jones makes money at poultry, and would make a poor success with bees. He's an out-and-out chicken-man. Smith is an out-and-out bee-man, and makes bees pay, but would lose on chickens. Brown can make an equal gain at either, and Black would make a failure at either.

2. If A. I. Root would become as much interested in incubators and brooders as he is in vegetables, I think he would show us how to run poultry so as not to interfere with bees, and make a success of it.
C. C. Miller.

I think, friends, that George Grimm strikes on the truth of the matter. Whoever takes up any industry expects to develop it and enlarge it. No one man can very well develop and enlarge bee culture and poultry-raising at one and the same time. He may, it is true, put in his spare time during winters and early spring with poultry; but when his business gets to be so large as to take his energies all the year round I think one or the other will be dropped.

Question No. 41.—*1. Is the general run of farm-work harder than the business of honey-producing? 2. Do you consider the bee-business, as a business, a comparatively light occupation?*

Yes, to both questions. Geo. Grimm.

1. Yes; 2. No, not if you want it to pay.
Paul L. Viallon.

1. Yes. 2. For *me* it is, if compared with farming.
Dr. A. B. Mason.

1. Most certainly; 2. Compared with farming, undoubtedly. Chas. F. Muth.

1. I think it is; 2. No, I do not. There is much toil and perspiration about it. G. M. Doolittle.

1. Yes; 2. It is certainly lighter than farming, though there is hard work in it at times.
Dadant & Son.

1. Not as *heavy;* but during the swarming and honey season, more confining; 2. I do.
Mrs. L. Harrison.

1. I think they are about equally hard. 2. Take the whole year, yes. During May and June, no.
A. J. Cook.

1. A little, perhaps; 2. The man in search of a light occupation, who goes into bees, will soon "light out" of the vocation. E. E. Hasty.

1. I think it is, but there's much in being used to it. I couldn't pitch a single load of hay without being "bushed." Jack Wilson can pitch hay all day, but he would be badly "bushed" to go through with one of my day's work in the busy season. 2. Hardly, compared with other occupations in general; and yet, when a man no stronger than I can follow it, it can't be so very heavy. C. C. Miller.

1. It is difficult to give a definite answer. There is farming and there is farming. There is the old way of scythes and hand-rakes and pitch-forks and cradles, and binding with bands of straw, and there is the new way with mowers and horse-rakes and horse-forks and self binders and potato-diggers and sulky-plows, etc. We doubt if, between modern farming and modern bee-keeping, there is *very* much difference so far as physical labor is concerned. W. Z. Hutchinson.

1. No; 2. No. I was born and lived on the farm until I was 16. Then I worked in an iron-furnace winters, and clearing up a 40-acre lot, and farming summers, for several years; worked at coopering, making salt-barrels; in short, I have worked at many kinds of work. No matter what I do, work is work, and bee-keeping is no exception. I get just as tired working with bees as at any other work that I ever did. It is no light easy work to handle bees, if it is done for a business. E. France.

1. Taking the year round, ordinary farming demands more muscular effort than properly arranged bee-keeping; but it is not so hard upon the nerves, nor does it require that a person be so quick and handy. 2. I do not consider practical honey-producing a light occupation. I consider it ill adapted to women, although some of our ladies, who, no doubt, are exceptionally adapted to it, succeed quite well. JAMES HEDDON.

I should say, friends, that a good deal depends on the notion of the individual. Where there is a will there is a way. When I was a boy, the driest and dullest, and most fatiguing and disagreeable work I ever helped to do was getting out manure, especially when it came to cleaning the hog-pen. Well, it is a little funny to think that this is just the work I enjoy most of all now. The secret of it is, however, I have discovered that the contents of the hog-pen is great for raising vegetables; and the thought of what the result is going to be, makes the laborious and disagreeable work pleasant. When I was a boy I did not consider the outcome. Perhaps father did not explain it to me; and I am afraid it would have taken a great amount of explanation to make me love the work just then. Now, bee culture may, in the light of the above, be considered a light occupation; and, if you will excuse the strain on the imagination, I should like to suggest that cleaning hog-pens *may be* considered *a light occupation*, in the same line (at least under some circumstances) perhaps we had better add, also, "for the time being."

QUESTION NO. 42.—*What is meant by a bee-keeper who is a specialist?*

A man whose main occupation is bee culture. DADANT & SON.

One who makes it his *principal* business. MRS. L. HARRISON.

One who makes bee-keeping his main or principal business. W. Z. HUTCHINSON.

One who depends on bee-keeping for his bread and butter. A. J. COOK.

A specialist among bee-keepers is one of those modest souls who claim the earth and all that is on it. CHAS. F. MUTH.

One who devotes his whole time to the business of bee-keeping, according to the authority of G. M. Doolittle. G. M. DOOLITTLE.

All bee-keepers are sometimes called specialists. More properly it applies to the man who devotes himself to some side branch of the business, as queen-rearing, or bees by the pound—or to honey put up in some particular shape. E. E. HASTY.

I am glad you asked this question; I take pleasure in giving my personal definition. I call a bee-keeper a specialist who makes honey-producing his *main* business; who depends *particularly* upon it for a living. JAMES HEDDON.

The man who answers to the Commercial Agency reporter's question, "What is your business?" by "bee-keeping" is generally a specialist. In other words, one whose principal business—and perhaps means of livelihood—is bee-keeping, is the specialist. GEO. GRIMM.

One who gives his special attention to a single branch of apiculture. One may be a specialist in queen-rearing, or in comb honey, etc., just as a doctor in medicine is a specialist in the treatment of special diseases, etc. P. L. VIALLON.

Just as many different things are meant by it as there are men who use the term. I wish its meaning might be settled. As frequently used, a man who keeps 40 colonies of bees is a specialist. Some mean one who raises more honey than he needs for his own family; others mean a man who makes bee-keeping his sole business. Possibly the true meaning should be a man who pays more attention to bee-keeping than to any other business. C. C. MILLER.

It is hard to tell. We have a man here who keeps 50 colonies of bees, but I don't call him a specialist with bees, for the reason that he is largely engaged in raising berries or small fruit, and his bees are a side issue. This same man formerly raised vegetables for sale. Now he has quit all the vegetable-business except onions, which he raises by the acre. Now we consider him a specialist on onions, although that is only a part of his work. We keep from 400 to 500 colonies of bees, and, besides, we are engaged in the blackberry business. But still our main dependence and work is with the bees. We claim to be specialists with bees, as that is our leading business. E. FRANCE.

That depends upon who is doing the talking. When I do it, I mean one who is distinguished as a bee-keeper, whether having a local or world-wide reputation as such; and by a bee-keeper, I mean one that either makes or buys his supplies and fixtures, cares for his bees, markets the products of his apiary, and is not engaged in any other business during the time the bees and the securing and caring for the products require special attention. At the Chicago Convention, Mr. A. I. Root claimed to be one who makes bee-keeping a specialty. I have, before and since, known of parties claiming what I did not think belonged to them. At the Ohio State Bee-keepers' Convention, some one (but not a bee-keeper) *claimed* my rubbers, and I have not seen them since; and this week, at a farmers' institute in Michigan, some one claimed my hat, but—left a better one in its place. DR. A. B. MASON.

Now, look here, Dr. Mason; bee-keeping *is* my business; but raising vegetables just now is my play, hobby, or recreation, or whatever you have a mind to call it; and if you were to come here any of these nice days you would see that I live up to the old adage, or try to, "Business first and pleasure afterward;" at least, the friends around here try to make me live up to it. Every little while they say, "Here, don't go out into the garden yet until you read this mail;" or, "The printers want you to read those galley-proofs, and give your answers right away, or we shall be behind on GLEANINGS again;" or, "Father, here is a man who has got a lot of bees to sell. What had we better do about taking them?" etc. Now, I will leave it to the assembled friends to say if I am not a bee-keeper. Even if you do try to insinuate that I took your rubbers, there won't anybody believe it who has seen both of us. A pretty-looking figure *I* should cut, trying to get away with *your* rubbers on!

JUVENILE DEPARTMENT

Every boy or girl, under 15 years of age, who writes a letter for this department, CONTAINING SOME VALUABLE FACT, NOT GENERALLY KNOWN, ON BEES OR OTHER MATTERS, will receive one of David Cook's excellent five-cent Sunday-school books. Many of these books contain the same matter that you find in Sunday-school books costing from $1.00 to $1.50. If you have had one or more books, give us the names that we may not send the same twice. We have now in stock six different books, as follows; viz.: Sheer Off, Silver Keys, The Giant-Killer; or, The Roby Family, Rescued from Egypt, Pilgrim's Progress, and Ten Nights in a Bar-Room. We have also Our Homes, Part I., and Our Homes, Part II. Besides the above books, you may have a photograph of our old house apiary, and a photograph of our own apiary, both taken a great many years ago. In the former is a picture of Novice, Blue Eyes, and Caddy, and a glimpse of Ernest. We have also some pretty little colored pictures of birds, fruits, flowers, etc., suitable for framing. You can have your choice of any one of the above pictures or books for every letter that gives us some valuable piece of information.

CONDUCTED BY ERNEST R. ROOT.

THE BOYS' BEE-HIVE FACTORY.

SPRING MANAGEMENT OF BEES.

FOR some time after Sam's unfortunate encounter with his enemies, and the consequent discoloration of his eye, he was the object of considerable hectoring from his friends, and of ridicule from those not his friends—a kind of fun he did not appreciate. Sam did not like to be called a coward, nor to be made fun of either "so everlastingly." He complained to his mother, that he could not endure it. "Why," said she, "you *let* the boys bother you. As long as they can extract any fun by so doing, they will continue to hector you. Join in with them in their fun, and do not let them think they can torment you."

While Sam was being thus advised by his mother, Jimmie came over and inquired for Mr. Green. "What's the matter?" said Sam.

"Oh! one of my hives is flying out like sixty!"

"The *bees* from one of your hives," said Sam.

"Yes," continued his playmate, "they are dropping into the snow, and dying by the hundreds. I come over to find out what to do for them. Where's your pa?"

"Why," said Sam, "I guess he's out in the barn."

Thither the boys hastened, trudging through the snow, for at that time, the first of March, they had some cold weather and considerable snow. Jimmie explained to Mr. Green the situation and then added, "As I didn't know what else to do, I plugged 'em up, for they are daubing the front of the hive all up."

"I don't believe you will gain any thing by 'plugging 'em up,' as you call it," said Mr. Green; "that is, if you mean by that, closing the entrance. They are doubtless badly diseased with dysentery."

"Well, what shall I do for them? how can I cure it?"

"On a cold day like this," said Mr. Green, "you can do nothing. Two or three warm days, so that they can fly out pretty generally, will give them a good opportunity to cleanse themselves. There is no better medicine that I know of."

"Why," said Sam, "I remember a few bees flying out of some of our hives during the winter."

"They were probably slightly affected with dysentery," said his father, "and, as a consequence, would be restless. Those most diseased flew out, chilled, and died. As for Jimmie's colony, as soon as the weather will permit, take out their soiled and dirty combs and give them some bricks of candy. Mary is going to make a small batch of candy for my bees this afternoon, and you can then learn how it is done."

"Yes," said Sam, "she always makes it for pa, and she knows just how to do it."

"It is a pretty good idea," continued his father, "to have these bricks on hand, for there will generally be some colonies which are running short of stores. These we discover in going over some warm day during winter."

"All right," said Jimmie; "if Mary is going to make candy I'll be on hand early in the afternoon."

It was then Saturday. Sure enough, he was on hand; however, rather more eager to pull taffy than to learn the art of making candy for the bees. The formula which Mary followed for making it was given under the head of "Candy," in the A B C of Bee Culture. The plan as carried out by Mary was as follows: Into a large tin basin she put a quantity of granulated sugar. Over this she poured a very little water, and then set it on the stove and allowed it to boil. While boiling it she continued to stir it so that it would granulate and harden, ready to pour off. To tell when it was boiled enough she dipped her finger into cold water and then into the hot candy, and back into the water again. If the candy did not crack off like an egg-shell, it was not done enough. She tried this two or three times; and when it cracked off from her finger she pronounced it just right. On a table, arranged in a row, were a dozen wooden butter-dishes. Into each one of these she poured about three-fourths of a pound of the hot melted sugar. When the candy was cold it was hard and just right for the bees. Three-fourths of a pound filled a butter-dish half full, and this would leave enough flaring edge so that, when they were inverted over a cluster in the hive, they would not crush a single bee. Some of these Jimmie and Sam placed over the brood-nest of hives where Mr. Green had placed a little stone, indicating that they were running short of stores when last examined. To do this the cover was first removed, and the hands were quietly pushed down to the side of the chaff packing until they reached the corner of the burlap. This was lifted up slowly until the cluster was revealed to view. The butter-dish of candy was then placed, inverted, right over this cluster. The corner of the burlap was then dropped down to its place, the cushion carefully adjusted, and the cover replaced.

"My!" said Jimmie, "how nice and how quickly that was done!"

"Yes," said Sam; "father said we could feed bees this way, even in cold weather."

One of these, Jimmie took home and placed over the cluster where the bees had been flying out heavily. Mr. Green had said that this butter-dish of candy would not prevent the present flying out of the bees, but would probably give them a better food than that which they already had.

About a week after, there came a warm day and Jimmie examined the colony which had behaved so uncommonly to him, and found the brood-nest was indeed soiled with dark-brown spots—the marks of dysentery, and the hive itself had an unpleasant odor. He carefully took out the soiled combs which had no honey, and in their place put a few clean dry combs which he happened to have. Over the whole cluster, as before described, two butter-dishes of candy were placed, and the bees were allowed to shift for themselves. It was a good strong colony when it went into winter quarters the fall previous, and now the bees were reduced to about half. Still, Mr. Green thought they would pull through if properly cared for.

JUVENILE LETTER-BOX.

THE COLOR OF POLLEN GRAINS, AND WHAT ARE THEY?

If the little folks will take the pains to turn to page 205 of the current issue, they will see that our friend Mr. Doolittle says something about the color of pollen—when and whence it comes. Perhaps some of the boys and girls will remember that I brought this matter up about a year ago. For some reason or other our young friends did not seem to become very much enthused over the idea. Perhaps the inducements were not sufficient to make them go to work. As Mr. Doolittle has revived the matter, I propose to renew it in this department; and in the way of inducement we will offer premiums as below. What I want is, that you shall watch carefully the first pollen that comes in, its color, and from what blossoms it comes. To any juvenile who will report carefully his observations, we will send, in addition to the regular little book, any one of the following free:

New Version of the New Testament, paper bound, large print.

Papeterie, a pretty box of stationery containing 24 sheets of note paper and 24 envelopes. This is a beautiful present for a girl.

Knife, one-bladed, cocoa-handled, blades good steel; a nice present for a boy.

MAKING BEES THINK IT RAINS.

My father has 12 colonies, and I have got two of my own. I have taken care of them for two years. I love to take care of them and see them swarm, and hive them. If they don't go in I sprinkle a little water on them, and they think it is raining, and they go in and consider their new home very nice. If they don't like it they go away. I am 12 years of age. **Lewis E. Geer.**

Wallace, Steub. Co., N. Y.

KEEPING SWARMS OF BEES FROM GOING OFF, TILL PAPA COMES.

I have to watch papa's bees when mamma is not at home. I saw the queen laying eggs. She is a very nice bee. I have never hived any swarms. I have settled them and sent for my papa, as he was running a locomotive. I had to carry water till he came. When papa got home they were all right. Our bees come out every warm day, and we have to pick them up and bring them in the house and warm them. Sometimes we get stung.

James M. Heverly.

Snow Shoe, Centre Co., Pa., Jan. 21.

THE FOURTH-COMMANDMENT BREAKERS.

They commenced bringing in pollen from the water-elm on Sunday, the first day of Feb., in 1885; commenced again bringing in pollen from the water-elm on Sunday, the 31st day of Jan., 1886; then again they commenced bringing in pollen on Saturday (Mr. T. D. Waller's Sabbath), the 22d day of Jan., 1887; commenced bringing in pollen from the water-elm on Sunday, the 29th day of Jan., 1888. Pa has 81 colonies of bees. The cold blizzard did not appear to hurt them. They remain on their summer stands in Simplicity hives.

Lizzie L. Mullin, age 12.

Oakland, Colorado Co., Texas, Feb. 14, 1888.

FREEZING AND UNFREEZING BEES.

I have tried to perform the experiment you asked us to, but the weather has been so extremely cold that every bee that chilled froze. I revived only one in 24 hours, out of eleven. When the weather was not so extremely cold they nearly all revived in two days; but I never could induce one to walk into its own hive after I placed them on the landing-board. They would walk off and fly first (they will chill very quick). After they had once been chilled I would go and pick them up and bring them to life, and try it again. This I would do before I was successful. **Flossie J. Eldridge.**

New Bedford, Mass., Feb. 4, 1888.

FROM A LITTLE BOY WHO HAS 7 SISTERS AND 4 BROTHERS; HOW HE FOUND A SWARM OF BEES.

I found a swarm of bees one year ago last summer. I hurried home and told pa, and he went and got them in his hiving-box and brought them home and put them in a Simplicity hive. They are as good as any of his bees now. Pa gave them a pure Italian queen last summer. I was coming home from my sister's when I found them. I have seven sisters and four brothers and three nephews. Our bees did not make much honey last summer, and some of them have starved already; but if pa had been well enough to take care of them he would have fixed them all right. He was laid up with a lame back over two months.

Noble Purdy, age 12.

Killbuck, O., Jan. 12, 1888.

BUCKWHEAT; CARPENTER BEES, ETC.

My papa got one pound of Japanese buckwheat of you, and raised 50 lbs. It was a poor season for buckwheat, it being so dry. We have 150 stands of bees. Last year we got only 1500 lbs. of honey. Our bees are all Italians and albinos. I like them best, for they are so gentle. Papa can go to the hive without any smoker, and work with them. I have a little brother. He was one year old the 6th of last December. We call him Huber Gilbert, after

Ernest's little brother, and G. M. Doolittle. In the summer he would pick up bees, and they stung him; but he seemed not to mind it. He almost always had a swollen finger. I read on page 950, Dec. 15, where Evinger dug out the bumble-bees. When my father first went to bee-keeping he was working in an old house, and he sawed into a board with a bumble-bees' nest in it. There were about a dozen bees in it. Some were white-faced, some black-faced. I put them by the fire, and they came to, and one of them stung me. It was cold weather about February. EUGENE R. HIXON, age 12.

Lock 53, Washington Co., Md.

I should hardly think the bees your papa found in the board were bumble-bees, but rather the carpenter bees, sometimes called by the long hard name of Xylocopa. See Prof. Cook's article on p. 82, GLEANINGS for Feb. 1.

TOBACCO COLUMN.

A GAIN OF 36 LBS. IN FLESH, FOR STOPPING THE POISON.

MR. SEYMOUR G. BUTTON, of this place, gave up the use of tobacco last June, after using it over ten years, and requested me to get him a smoker. In the past seven months, after giving up the use of tobacco, he has gained in weight from 163 to 199 pounds, and is still gaining. If you will send him a smoker I will see that you are paid for it if he ever uses tobacco again.

EDGAR W. PHILO.

Half Moon, N. Y., Jan. 3, 1888.

A LADY TAKES THE PLEDGE AND TAKES A SMOKER.

Mrs. Mary Bartlett, on presentation of GLEANINGS, promises to quit smoking. Send her a smoker; and if she breaks her pledge I will pay for it.

Dec. 27, 1887. L. D. COFFMAN.

I stopped using tobacco four years ago. Some of my neighbors have stopped using the weed through my influence, so you see where I for one quit, I got three more to do so. Let all non-users stand up and do all they can for their fellow-men.

Angus, Neb., Feb. 10, 1888. DANIEL MINER.

GOING SECURITY FOR A NEIGHBOR.

An old friend of mine, Mr. Amos Wilson, who has been a slave to tobacco for the past 25 years, promises, by the help of God, never to use it again. If you see fit to send me a smoker, I will give it to him; and if he ever uses the weed again, I will pay you for it. I use a Clark smoker, and could not do without it. J. C. FRISBEE.

Suffolk, Va., Feb. 21, 1888.

THE LONGER THE TIME GETS, THE PROUDER I GET.

I have been a slave to tobacco for over seven years, but now am happy to say that I am a free man once more. It is now over six months since I quit using the filthy weed; and the longer the time gets, the prouder I get; so if you think that I am entitled to a smoker, please send me one; and if I ever use it again, I will pay you the full amount.

Coulterville, Ill., Jan. 17, 1888. JOHN L. BONNAT.

GIVING UP TOBACCO AND TAKING UP BEES.

I need a smoker very much. I am afflicted with consumption. I have decided to raise bees and honey, instead of smoking, and hereby pledge myself never to smoke again. If I am entitled to a smoker for my pledge, send it along.

Fredonia, Kan., Dec. 30, 1887. J. W. STEPHEN.

Friend S., you have omitted one little item in regard to our tobacco pledge. He who receives a smoker needs to say, "If I ever use tobacco again in any form I will pay you for the smoker;" and after having written this in your own handwriting, sign your name to it. If some good responsible man signs the contract for you, it will do just as well; that is, if said man undertakes to pay us for the smoker providing you are ever seen using tobacco again, it will do as well.

SIGNED, SEALED, AND WITNESSED.

This is to certify that I the undersigned, Charles M. Lynch, Jr., of Trenton, N. J., do promise to quit using tobacco upon receipt of a smoker. Witnessed by E. E. Guy. CHARLES M. LYNCH.

Trenton, N. J., Nov. 28, 1887.

That is the sort, friend L.; but you forgot to add the small item about sending the pay in case you break your pledge. You see, friends, our tobacco pledge is of such a nature that you can get out of it at any time if you find it burdensome to bear; and you can get out of it honorably, too, by handing over the small amount of 70 cents. Surely such a bondage is not a heavy one, is it?

ONE UNFAITHFUL.

I have never chewed tobacco, but have been given somewhat to smoking cigars. I have come to the conclusion that it does me no good, consequently I have pledged myself to smoke no more. If you think I am entitled to a smoker, please send it. I do not come begging; but so many send in their "quit claims" I thought I might as well send mine. I saw a friend smoking here last winter, after receiving the smoker, which I do not think business, although I do not wish to mention the name. I have 85 colonies of bees in the cellar, which seem to be in good shape. We have 2½ feet of snow here in the woods. Mercury has been as low as 27° below zero here.

Hillsborough, Wis., Jan. 4, 1888. E. FOX.

Why, friend Fox, it is a duty you owe to your friend as well as to GLEANINGS, to tell us his name. I think, however, the better way would be to go to him privately and say something like this: "My friend, I saw your name in GLEANINGS as one who has promised to pay for a smoker if he ever uses tobacco again. Now, as we regard you as a man who is good for all contracts over his own name in black and white, we expect you to pay Mr. Root for the smoker at once, if you have not already done so." Perhaps some of the friends are careless or thoughtless about this. If one who has taken the pledge puts a single grain of tobacco in his mouth, or takes a whiff of tobacco smoke through a pipe or cigar, there is no honorable course open to him but to hand over the price of the smoker. If he wants to turn over a new leaf and commence again, all well and good; but even this does not release him from his promise. One must hold his word and honor in very low estimation who would break it for a paltry 70 cents, especially when this promise has been made right out in public, before the eyes of men as well as before the all-seeing eye of his Creator.

OUR HOMES.

Also I say unto you, Whosoever shall confess me before men, him shall the Son of man also confess before the angels of God: but he that denieth me before men shall be denied before the angels of God.—LUKE 12: 8, 9.

AT the close of our prayer-meeting last Sunday evening, an invitation was given to those who would like the prayers of Christians, to rise. Perhaps half a dozen or more arose; that is, half a dozen or more who had never risen before. Some of them may have said, as they rose, "Pray for me;" others said nothing. Our pastor, who was leader of the meeting, simply asked those to rise who would like to indicate, by so doing, that they felt it would be a privilege by this act, to say, "Pray for me." The sober and serious looks of all present indicated that very serious thoughts were in the minds of almost all there. We had been considering, all through the meeting, a very serious and sacred subject, and all felt the solemnity of the occasion. Perhaps most of those present remembered sins and weaknesses they had been guilty of during the preceding week; and more than one was really and truly hungering and thirsting after righteousness. I remember the feeling uppermost in my own heart at the time, and I said mentally, if not aloud, "God have mercy on *me* a sinner."

At the close of the meeting, the pastor said he would like to have a little talk with those who had risen for prayers. He had also invited others to remain, who felt like doing so. Of the hundred or more who were present, perhaps fifteen or twenty remained. After a few brief prayers, and some remarks from the leader, in regard to the danger of indecision and delay, he began to ask how many of those who had risen for prayers were willing to indicate, by rising again, that they would at that time and in that place accept Christ as their Savior. You have all doubtless been present at such meetings. Perhaps you have at such a time been impressed with the sacredness and the solemnity of the act of rising after such an invitation. Can it indeed be true, that so simple a matter as rising or sitting still fixes the future? There were boys and girls whom I knew well, right before me, perhaps on either side, who were just starting out in life. They had no fixed principles for either very good or very bad. I presume they had never thought very much about the matter of uniting with Christian people, or of holding aloof from them. One young lady whom I had talked with on the subject, decided there that evening that Jesus should henceforth and for ever be her portion. The decision was made by simply rising. I don't know that she spoke a word until questioned somewhat by the leader. She then said she had for many years considered the matter of following Christ in such a way that he should be first, last, and all. I knew she had had some experiences in her life that told her pretty plainly what it was to choose Christ, or to choose what many young people might consider *liberty* to do as they please in regard to matters of conscience. May be she did not fully comprehend all that was included in this little act of rising to such an invitation, and, for that matter, I am not sure that any of us do when we make the decision. But I felt sure, when I saw her rise, that God would make it plainer as she commenced taking these gradual steps from earth toward heaven.

A young man present, who had once before risen for prayers, did not rise in answer to this last invitation. When the pastor spoke his name, and asked him if he was not ready then to choose Christ for his friend and leader through life, he shook his head; and as I saw him shake his head, a chill went over me. This young man knew of Christ and of Christ's teachings. He knew what it was to be a Christian. He knew what he must do to be a consistent follower of Christ, and he also knew what he must *not* do. Another one, perhaps encouraged a little by the position this one had taken, decided *also* that *he* was not ready to choose Jesus before the world and what the world had to offer. I fell to wondering at the time if it were not possible that both of these young friends didn't understand exactly what this invitation meant. Why should they refuse to publicly announce themselves as among Christ's followers? What was there in their lives that they hesitated to change or give up by so doing? Only God can read the inmost thoughts of the soul; but I felt sure they both comprehended clearly what it was they declined. They said by acts, if not by words, "You are right, friends, and it *is* true that we prefer not to be one of Christ's followers just yet." As I look back at that time and place I am again tempted to think they did not comprehend nor understand exactly the crisis in their lives. Our pastor tried to explain to them by different figures and illustrations that they stood at the place where the road of life forked. There are only two ways, or only two roads, if you choose. There is not any third road, nor is there any chance to go 'cross-lots. We must take one road or the other. One of these two roads leads to the gates of the heavenly city, and the other leads to ruin and despair. It is true, that at some future time these boys may turn back and take the way of life; but the chances are, I believe, against such turning back. Every day of life we live pushes us ahead.

I mentioned this matter at our noon service the next day. I related the circumstances, and then asked of our little audience—

"Were those who rose for prayers at the close of the meeting, Christians?"

The reply came back promptly, "They were not."

"Well, dear friends, were those who rose in answer to the second invitation at the close of the meeting, Christians? or, in other words, suppose they should have died that night, were they among the saved?"

The answer came promptly as before, "Yes, sir." There was no dissenting voice in any of that audience. Some present were church-members, and some were not; but there was no difference of opinion. I suppose the whole Christian world, and, very likely, the greater part of those who are not professing Christians, would agree on this matter. Those who stood up publicly where there were only fifteen or twenty present, and indicated by the action that they were, for the rest of their lives, going to follow Christ, had done all humanity can do, for the time being. As the duties of the next day and week opened, they, of course, felt the responsibility that rested upon their shoulders, of living lives consistent with the pledge or public profession they had made. But had God called them away before they had had time to show their sincerity by the tests of every-day life, we must all agree they were among the saved. If this be true, then, dear friends, is it not also true that those who shook their heads, even though they simply meant by this action to indicate that they were not ready just yet, were *not* saved? If death had met them with equal suddenness, we must conclude they were among the lost. No doubt some of you will say this is a hard doctrine. May be you will say it is a question that is not for me to decide. Very well, I will give way. But remember it matters little whether I decide it or not. *You* must decide it, dear friends, one way or the other. As your eyes rest on these words you are either for or against Christ Jesus; and I can not think that there is one who looks on these pages, who does not know what is meant by accepting or rejecting Christ Jesus. We are either saying, "We will not have this man to reign over us," or we have deceded already, "We wish to be among his followers." You may urge that the matter is one of altogether too great importance to rest on so simple an act; and I confess the question somewhat staggered me when I thought of it. Is it really possible that boys and girls, and men and women start out for heaven or for ruin in so simple a manner as this? The simple matter, dear friends, only indicates *where* they are. It is not likely that any of them changed very much at the close of that evening meeting. The question had been decided before. May be they did not realize what this decision meant, but I think they had for some time been questioning, "Shall my life be given to all that is pure and good and noble and true, or shall I do as the world does, and evade these questions for the present, and get as much enjoyment out of life as I can?" Something like the above was decided, or partly decided, and the minister's close-cutting questions simply indicated the state of mind.

Now, in view of the above, or, rather, in thinking of the above, an incident toward the close of our Savior's life has become very precious to me. You remember that he had consented to drink the bitter cup. He was walking slowly and sorrowfully toward the cross. The fickle multitude first shouted praises, and, a little while after, changed it to "Crucify him! crucify him!" His duty, however, was straight ahead, without being changed or moved in his purpose by either extreme of popular clamor. Most of his disciples fled in a fright; and one of them even *denied* him. To add to the bitterness, he was crucified between two malefactors, or thieves. They were notoriously bad men. Their hands were probably dyed with crime, and, may be, with human blood. They did not *pretend* to be good. The chief priests very likely purposely placed him between the thieves that he might be classed with them. We are not sure that any friend was present to give him a cheering word as he undertook to bear on his own shoulders the sins of the world. The scribes gibed and jeered at him, and said, "He saved others, himself he can not save." They even railed on him a challenge to come down from the cross. They asked him where his wonderful miraculous powers were gone to now. They ridiculed the idea that he *could* save himself but *would* not. Matthew tells that even the thieves which were crucified with him cast the same in his teeth. This illustrates the way in which a man who has once started in evil ways will hold it out to the last. Even the awful tortures of crucifixion did not serve to soften or change the evil disposition that induced them to reject goodness and purity and honesty. But now we come to the point of our lesson to-day. Luke tells us that one of the malefactors at Christ's side, in railing on him, said, "If thou be Christ, save thyself and us." This poor wretch could not conceive of power being entrusted to anybody who would not use it. Doubtless during his life he had been continually betraying the trust of his fellow-man. If money was uncautiously left in his presence, he had probably been in the habit of taking it without scruple, and, it may be, even when he was obliged to take life in order to get it. Here was a being at his side whom the people said had been through life performing miracles, even raising the dead; but that he had the power, and, out of forbearance to his enemies, refused to use it, was beyond his comprehension or belief. He unhesitatingly rejected any such belief or doctrine. Just at the last moment, however, the other one is touched, and, moved by the spectacle before him, he turns to his more evil companion and rebukes him, saying, "Dost not thou fear God, seeing thou art in the same condemnation?" And now he begins to show symptoms of penitence. The first move, dear friends, toward accepting Christ is to confess and own up, instead of trying to conceal and put on an outward appearance of innocence. Remember what I said in our last talk about the man who preferred to commit suicide rather than have the world know of his crimes. Well, this penitent thief on the cross finally adds, "And we justly; for we receive the due reward of our deeds." His poor guilt-stained conscience is making progress. He begins to see that it is no more than *fair* and *just* for *himself* and *companion* to suffer death; and, my friends, it is indeed true, that, when we begin to comprehend and acknowledge our own bad deeds and unworthiness, we begin to see innocence and purity in others; and the thief concludes, "But this man hath done nothing amiss." He probably had some means of knowing that Jesus was suffering for no fault of his own, but through the bitter enmity and hatred of his wicked persecutors.

Now, then, how much further must this poor guilty soul go, to stand where the gates of heaven are open before him? He is approaching the crisis, like those young friends in the prayer-meeting. How much does God require? Thank God, we have the exact words of the thief at this point. With his last expiring agonies, it may be, he says, simply and helplessly, with childlike pathos, "Lord, remember me when thou comest into thy kingdom." As the consciousness of his guilt weighed him down, he did not dare ask outright for forgiveness. Perhaps he hesitated to put in words the wish that the past might be pardoned and blotted out, that he might die in peace; so he simply says, "Remember me"—nothing more. He has, in these few last words, been taking Christ's part. His *comrade* must have seen that he was "on the Lord's side," as we often express it in our meetings. Could it be possible that these few feeble expressions of penitence would be received, and full pardon granted? The reply of the Master leaves no room for doubt on the subject. The poor feeble apology from the dying lips was accepted, and eternal life was granted. Jesus stood ready, even when dying agonies tortured his poor frame; ready as he is just now, dear reader, to give *a thousand times more* than the penitent one asks, providing the request be made with honesty and sincerity, and with a complete surrender. "Verily, I say unto thee, To-day thou shalt be with me in paradise." The past bad life was gone, forgiven and forgotten; and who can tell—what human imagination can conceive—of the joy and praise that filled that poor heart? As all things earthly faded away before his dying eyes, a glimpse of the New Jerusalem opened up to his glad soul, on the other shore; glad, because he was with that new-found Saviour. A new life had opened up to him, and the glories of immortality were his. Reader, you are not near to death; but you may decide as simply and as easily as did the dying thief; you may now make the decision; and Christ Jesus will guide you and lead you in the ways in which he would have you walk.

Help me, dear Savior, thee to own,
And ever faithful be;
And when thou sittest on thy throne,
Dear Lord, remember me.

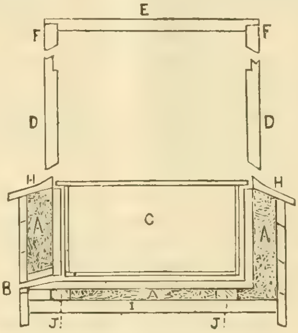
OUR OWN APIARY.

CONDUCTED BY ERNEST R. ROOT.

THE ONE-STORY CHAFF HIVE; HOW TO MAKE, AND HOW TO NAIL IT TOGETHER.

SOMETHING over a year ago, our readers of last year will remember that, in this department, the claims of the one-story chaff hive were set forth. Since that time this hive has grown rapidly in favor; and at the present rate it seems destined to take the place of the two-story, because the former possesses more desirable features, such as interchangeableness, more ready adaptation to modern appliances, ease of handling, etc.

Considerable inquiry has been made as to how this hive is built. To show its manner of construction we have had the following cross-section diagram made, the section being taken in the direction of the frames.



CROSS-SECTION OF THE ONE-STORY CHAFF HIVE, FIG. 1.

You will observe that it is hardly more or less than a Simplicity hive with a double wall; A A is a two-inch space filled with chaff. The outer shell is made in very much the same way as that of the two-story chaff hive. The slats composing this siding are 3 inches wide, and beveled as shown; for the sides of the hive they are 24 inches long; and for the ends, 18 inches long. These slats C are nailed at the ends on the inside of the shell to corner-posts, B B, and strengthened in the corners by a strip of wood, D D, about an inch square, as shown in the following diagram:

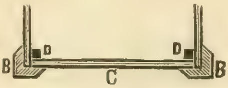


FIG. 2.

One of the slats at the front end of the hive is grooved at the entrance, as shown at B, Fig. 1.

Next the inside shell is made, the material being of ⅜-inch stuff, put together so as to make a box the same size as the Simplicity, inside dimensions. The entrance-way should next be made. Two cleats, 2 in. long and ⅜ in. square, are laid on the bevel of the bottom-board, which projects beyond. Over this is laid a board 2x9x⅜, and nailed. A similar board is also nailed on the underside. The entrance-way will now come opposite to the opening B, in the siding, when the inside shell is set in place, as below explained. In H H you will notice a water-table, or, as you might call them, rims. These lap over, as you will observe, from the inside to the outside shell. When these four rims are put together they somewhat resemble a picture-frame; but instead of putting the rims together, before fastening on the hive as you would naturally suppose, the two side rims are nailed to the sides of the inner box first, with 2-in. wire nails. This done, the whole is set right into the inside shell, being supported temporarily by the two inside rims before mentioned. These are then nailed. Next, the two end rims are fitted into position, and nailed. The whole hive is then inverted, and two strips, 2 x ⅞, in length equal to the width of the hive, are nailed on to the bottom of the inside shell. Over this is laid a piece of tarred paper large enough to cover the inside of the hive. Over the whole we then nail temporarily some rough boards. The hive is then ready to be packed. When enough are put together, as just described, they are taken out to some convenient place, the false bottoms removed, and the dead-air spaces packed with chaff, after which the tarred paper is replaced, and the rough boards are then nailed to J J, Fig. 1, permanently.

The upper portion of the hive will be apparent from the diagram. D D, Fig. 1, are the two ends of the Simplicity hive; F E F is the cover. You will observe that the Simplicity body just fits upon the water-table of the one-story chaff. We are thus enabled to secure all or nearly all of the advantages of the Simplicity hives, together with one or two other additional advantages; as, for instance, a wintering hive. For points of superiority of this chaff hive over the two-story, the reader is referred to page 189, last year's volume.

THE ONE-STORY CHAFF AS A WINTER HIVE.

We have sold a good many of these hives during the past year, and they have given universal satisfaction. During the time that they have been in use, now over 7 years, we do not remember to have received one adverse report in regard to them. That bees *may* die in them during winter, may be true. Bees also die in two-story chaff hives. Since the mention of them on page 189 of our volume for 1887 we have had quite a number of very favorable reports.

REPORTS ENCOURAGING.

PROSPECTS ENCOURAGING FOR TEXAS.

YOU wish to get prospects for honey. In this section it is very good: plenty of rain this winter, and spring is here now with peaches, plums, box-elders, and barb-berries in full bloom; willows, and water and slippery elm are past blooming; but we are not past danger of frost until about the time when spring commences by the almanac.

GLEANINGS is becoming much improved now, with the Question-Box. I got behind the times, not seeing it for 1½ years. I will not miss it again as long as I keep bees. I would rather stop farming than to be without bees. A number of bee-keepers lost their bees last year, mostly from the want of water, I think; but the information I had from the A B C book and GLEANINGS saved my 40 colonies. They are in fine condition now and may be swarming in two or three weeks. **G. OBERKAMPF.**

Crane's Mill, Tex., Feb. 27, 1888.

Of 68 stands of bees packed, all are flying to-day. Of 26 stands not packed, 4 are dead. **A. E. MAYER.**

Burket, Ind., Feb. 22, 1888.

MORE GOOD PROSPECTS FOR TEXAS.

Prospects for a honey crop are excellent here. We had plenty of rain this winter. Bees are gathering pollen and some honey; they are in fine condition. **L. STACHELHAUSEN.**

Selma, Bexar Co., Texas, Feb. 22, 1888.

NONE LOST OUT OF 140.

I went into winter quarters with 140 colonies in the cellar; up to this date there is no sign of any disease. **R. A. WEIR.**

Clayburg, N. Y., Feb. 20, 1888.

WINTERING WELL.

We have 17 swarms of bees. They appear to be wintering well. Honey is all sold at from 12 to 15 cts. We could sell more if we had it. **E. G. DODGE.**

Turin, Lewis Co., N. Y., Feb. 21, 1888.

WINTERED WELL, AND NEW POLLEN.

Bees have wintered well in this section of North Carolina. I have heard of but very few dying this winter. My bees are all alive to date, and gathering pollen very rapidly. I will give all the information I can from this section, free. **J. H. BURRAGE.**

China Grove, N. C., Feb. 20, 1888.

POLLEN FROM CEDAR.

We have had several warm days, and my bees are gathering pollen rapidly from the cedar. I never saw bees work on cedar before. The trees are literally covered with bees. I believe they are getting honey also. Lots of them go without pollen. I don't remember of ever having seen in the A B C or GLEANINGS where cedar is mentioned as a honey-tree. It would make your eyes sparkle to see them on the cedar to-day. **R. B. WILLIAMS.**

Winchester, Tenn.. Feb. 13, 1888.

THE FIRST DRONE; PROSPECTS GOOD FOR NEXT SEASON.

Yesterday, Feb. 19, was a warm day, and the bees were flying out and seemed to be working. I saw one drone. What does it indicate, to see drones at this time of year? The Italian queen that I received from you last May is doing finely. I saw young Italians out yesterday, taking their playspell. I have ten hives in apparently good condition; lost none this winter, yet I think that this will be a good year for bees, as last year there was scarcely any thing for them in this locality.

Glencoe, O., Feb. 20, 1888. **P. M. SUTTON.**

One or two drones are often found in the hives in the winter time; but it seems to be a sort of accident, and indicates nothing, so far as I know.

FROM 13 TO 32, AND 50 LBS. PER COLONY.

I commenced in the spring with 13 swarms in a weak condition. They pricked up a little, and I got 150 lbs. of milkweed honey, extracted. As we have no clover or basswood, nor any early honey to speak of, we have to depend almost entirely on fall honey, which is almost wholly from heart's-ease. I increased altogether by artificial swarming, and think it the best way for our locality. I increased to 32, and had them all good and strong; then I put the boxes off for section honey. Two swarmed on the 4th of Sept.; the other the 12th; they both filled their hives ready for winter, in good shape. I got about 50 lbs. per colony, spring count, of comb honey. **F. C. LEFEVRE.**

Juniata, Neb., Feb. 20, 1888.

GLEANINGS IN BEE CULTURE.

Published Semi-Monthly.

A. I. ROOT,
EDITOR AND PUBLISHER,
MEDINA, OHIO.

TERMS: $1.00 PER YEAR, POSTPAID.

For Clubbing Rates, See First Page of Reading Matter.

MEDINA, MAR. 15, 1888

To this end was I born, and for this cause came I into the world, that I should bear witness unto the truth.—JOHN 18: 37.

CHESHIRE'S "BEES AND BEE-KEEPING."

THE second volume of the work as above has reached us. For want of space we are unable in this number to give it such a review as it deserves. We hope to do so, however, in the next issue.

WHEN TO GET GOOD PRICES FOR HONEY.

A GOOD point is made in regard to the above by one of our commission houses, F. Strohmeyer & Co., in the Honey Column, page 194. We believe the point is well taken, and honey-producers would do well to bear it in mind.

ARTICLES CROWDED OUT.

A GOOD many valuable communications have been crowded out of the present issue of GLEANINGS, in consequence of the inflow of advertisements. In order to give our readers the full amount of reading-matter, we propose to add eight extra pages for two or three months. We hope our friends who have been waiting anxiously for their articles to appear will bear with us a little longer.

ONE-STORY CHAFF HIVES.

I AM afraid that Ernest is getting a little too strong in favor of these—see Our Own Apiary. For very cold localities, I feel quite certain that the two-story will give the best protection. I am also in favor of the upper story as a place for feeding, when robbers are troublesome. There are no cracks nor joints for them to hang about. I also like the large amount of space for surplus. Aside from this, I quite agree with him. The two-story chaff hive was not made, however, to accommodate the T supers, so much in use at present, and is not adapted to tiering up more than two high.

THAT PICTURE OF E. FRANCE.

SINCE the last issue, we have received the following from Mr. France himself, and also from Mr. Charles Dadant:

> That picture of E. France is just splendid. Please let us know who made it, and oblige CHAS. DADANT & SON.
> Hamilton, Hancock Co., Ill., March 9, 1888.

> I have received GLEANINGS for March 1, containing the picture of myself. You have done remarkably well. Your new process of making pictures must be a good one. Thank you for the compliment. EDWIN FRANCE.
> Platteville, Wis., March 8, 1888.

To others who may be interested in knowing how that engraving was executed, we will say that it was made by what is known as the Ives process of direct engraving. The readers will see that it is a direct copy of a photograph, the engraving being done by old Sol. Such engravings are necessarily a perfect reproduction—never making the person represented look "horrid" or unnatural to his friends. In order to print this kind of pictures it takes first-class paper, a first-class press, and a first-class pressman. Our readers can judge whether we have all three or not. We hope to get out other pictures by the same process during the year.

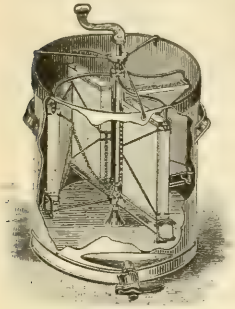
ALFALFA.

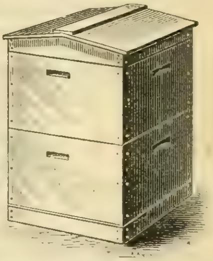
JUST now there is quite a boom of inquiries in regard to alfalfa. I presume that much of it comes about from some wonderful pictures in the agricultural papers, of an alfalfa-plant with roots that look as if they went as deep as the bottom of a well, and branched out almost as much as the size of a well sidewise. Inasmuch as alfalfa is a honey-plant, we think it no more than fair that we should explain a little. It *is* a wonderful plant to go away down into the subsoil; and very likely it goes deeper than alsike, mammoth red clover, or any other plant. We have raised it on our own grounds, and it has come up year after year, and borne a large amount of foliage right through the hottest and dryest weather. This was on hard clay; and when we came to use the ground finally for an addition to our factory we had a chance to see how far down the roots went. If I am correct, some of them reached two and a half and three feet into ground that was hard to break up with a pick. Afterward I had a piece of ground prepared and broken up down deep with a subsoil plow; but before I got round to sowing the alfalfa, strawberries became my hobby and we have now the great big Sharpless berries on that same ground. Before going into the matter very extensively, I would try a small piece. We can furnish you the seed at 5 cts. a packet; 22 cts. per lb.; 40 cts. per lb., if wanted by mail.

STOPPING GLEANINGS WHEN THE TIME IS OUT FOR WHICH IT WAS PAID.

As a matter of course, some of the friends are displeased because we keep GLEANINGS going after the time has expired for which they have made payment. We never do this, however, when the one who subscribes says, "Send it for the money inclosed, and no longer." But when they simply say, "Keep GLEANINGS going," or, "Send it for another year," how are we to know what method will please best? When we used to stop it at the expiration of the time every year, a great many would say, "Why in the world did you stop GLEANINGS when you had money to my credit on your ledgers?" Of course, we explained that we had no right to use such credits unless authorized to do so. But a great many could not see it that way. They would still say, "You might have *known* that I wanted it kept going." And others would say, "I would thank you to keep it going until you have orders to stop it." The whole trouble is, dear friends, that the matter is left without any orders either way. In such cases we have found it best to guess at the wishes of our friends as near as we can; and, as a rule, a man feels better to have *more* than he meant to have, rather than not enough; and we have for the past two years kept it going until somebody says, "Don't send it any more." By this latter plan we have to take the risk of some loss, it is true; but we have found *very few* who were unwilling to pay for all the numbers they had received.

NEW YORK. *FOREIGN ORDERS SOLICITED.* NEW JERSEY.





EASTERN ⁕ DEPOT

(Bees.) —FOR— *(Queens.)*

EVERYTHING USED BY BEE-KEEPERS.

EXCLUSIVE MANUFACTURER OF THE

STANLEY AUTOMATIC HONEY-EXTRACTOR.

Dadant's Foundation, Wholesale and Retail.

WHITE POPLAR OR BASSWOOD SECTIONS.

One-Piece, Dovetail, or to nail. Any Quantity, any Size.

COMPLETE MACHINERY—FINEST WORK.

Send for Handsome Illustrated Catalogue, Free.

MASS. **E. R. NEWCOMB, Pleasant Valley, Dutchess Co., N.Y.** CONN.

BEE SUPPLIES.

Wholesale and Retail.

We have the largest steam-power shops in the West, exclusively used to make EVERYTHING needed in the Apiary, of practical construction and at the LOWEST PRICES. Italian bees, queens, 12 styles of Hives; Sections, Honey-Extractors, Bee-Smokers, Feeders, Comb Foundation, and everything used by bee-keepers, always on hand. Illustrated catalogue FREE to all. Address 3-11db E. KRETCHMER, COBURG, MONTGOMERY CO., IOWA.

FREE To All Seed Buyers Our complete illustrated **Annual** of **Tested Seeds, Bulbs, Tools, etc.,** tells all about seeds and gardening. **Colored Plates.** **A. W. LIVINGSTON'S SONS.**

DO YOU WANT SEEDS

Prices low for reliable seeds. Sold last season to Thousands of Farmers and Gardeners and no complaints. We are Growers as well as Dealers. **Originators of Acme, Favorite and BEAUTY Tomatoes, &c.** **Box 273, Columbus, O.**

C. M. DIXON, PARRISH, FRANKLIN CO., ILL.

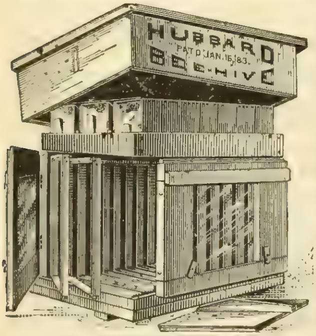
MANUFACTURER OF AND DEALER IN

APIARIAN SUPPLIES,

AND BREEDER OF

FANCY POULTRY.

5-8db Send for Price List.



CIRCULARS FREE.

ASK FOR SAMPLE ONE-PIECE SECTION IF YOU WANT IT.

G. K. HUBBARD, LA GRANGE, INDIANA.

If you are ever annoyed by the scraping and breaking of combs; killing bees when setting a frame to one side, or hanging it in the hive; sagging at the bottom and getting waxed fast; shaking about when moving a hive; in short, if you dislike to pry and wrench your frames, break combs, and kill bees while handling them, you will be pleased with this hive.

VERY CONVENIENT. AGENTS WANTED.

10C For "1st Principles in Bee Culture." It tells how to Divide, Transfer, Introduce Queens, Feed, Unite, Stop Robbing, &c. Money returned upon return of book, if you are not satisfied

Costs less than 2 cents per week.

THE CANADIAN BEE JOURNAL.

THE FIRST DOLLAR WEEKLY IN THE WORLD.

THE D. A. JONES CO., PUBLISHERS, BEETON, ONTARIO, CAN.

D. A. Jones is its editor, and this fact is a guarantee of its worth. It is thoroughly practical and contains weekly excellent articles from leading bee-keepers in the United States and Canada. Fifty-two numbers make a volume of 1040 pages. American currency and stamps at par. Samples free.

EVERY GOOD FARMER

WHO HAS USED

The Columbia Chilled Plow

Says it is the Lightest Draft, Easiest to Handle, Strongest and **Most Durable,** does **Better Work** in **all Soils;** in short, **the Best Plow in the Market. Don't fail** to try a **Columbia** before purchasing any other. Send for price list, testimonial, and calendar. If they are not sold in your vicinity send for **Special** introducing **Price.** Mention this paper.

COLUMBIA PLOW WORKS,

COLUMBIA CO. **Copake Iron Works, N. Y.**

2-STORY

L. Hive, 80c

We still have a few of those 2-story L. hives with 10 brood-frames, for 80c each, in crates of 5 or more. Who will have them? Speak before it is too late.

SMITH & SMITH, 6tfdb **KENTON, OHIO.**

DADANT'S FOUNDATION FACTORY, WHOLESALE and RETAIL. See advertisement in another column. 3tfbd

HEADQUARTERS **For Cards and Stationery for Bee-keepers and Others.**

Besides our beautiful eight-color chromo card, we have other neat designs, also a fine selection of fancy address cards, for old and young, for business and amusement. Also two and three letter monograms, all at low prices. **See Here,** 50 fancy printed cards, 15 cts.; 300 envelopes, 300 letter-heads, printed, $1. Package 25 assorted cards, 10 cts. Neat box of cards and honey candies, 15 cts. Circulars free. Address J. H. MARTIN, Hartford, N. Y. 20tfdb

E. W. PITZER, HILLSDALE, IOWA,

Producer of and dealer in Italian Bees, comb and extracted Honey; also M. B. Turkeys, Toulouse Geese, Langshan, P. Rock, and White R. Comb Leghorn Chickens. Our breeding stock is first-class, and judiciously mated. Send for price list. 58db

G. B. LEWIS & CO.

WE make the best Bee-Hives, the best Sections, the best Shipping-Crates, the best Frames, &c.
☞We sell them at the Lowest Prices.
Write for free Illustrated Catalogue.

G. B. LEWIS & CO.,
1tfdb WATERTOWN, WIS.

NOW IS YOUR TIME! DON'T WAIT!
NO. 1 POPLAR SECTIONS,
$3.50 per 1000. Special rates on 5000 or more. Samples free, and price list of Bees, Hives, Frames, Crates, Supers, Fdn., etc. I can suit you.
5-6d H. P. LANGDON, East Constable, Franklin Co., N. Y.

BEE- KEEPERS' SUPPLIES.

HIVES, FRAMES, CASES, SECTIONS, COMB FOUNDATION, ETC.

Send your address for FREE CIRCULAR to
REYNOLDS BROS.,
5tfdb **Williamsburg, Ind.**

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4 YOU BUY

your supplies for 1888, send for my 32-page illustrated Catalogue, describing my new reversible-frame hive and T super. They are perfection. Address **E. S. ARMSTRONG,**
5tfdb **JERSEYVILLE, ILLS.**

NEARLY THIRTY TONS
—OF—
DADANT'S FOUNDATION
SOLD IN 1887.

It is kept for sale by Messrs. T. G. Newman & Son, Chicago, Ill.; C. F. Muth, Cincinnati, O.; Jas. Heddon, Dowagiac, Mich.; F. L. Dougherty, Indianapolis, Ind.; B. J. Miller & Co., Nappanee, Ind.; E. S. Armstrong, Jerseyville, Ill.; E. Kretchmer, Coburg, Iowa; P. L. Viallon, Bayou Goula, La., M. J. Dickason, Hiawatha, Kansas; J. W. Porter, Charlottesville, Albemarle Co., Va.; E. R. Newcomb, Pleasant Valley, Dutchess Co., N. Y.; D. A. Fuller, Cherry Valley, Ill.; J. B. Mason & Sons, Mechanic Falls, Maine; G. L. Tinker, New Philadelphia, O., Jos. Nysewander, Des Moines, Ia.; C. H. Green, Waukesha, Wis.; G. B. Lewis & Co., Watertown, Wis.; J. Mattoon, and W. J. Stratton, Atwater, O., Oliver Foster, Mt. Vernon, Iowa; C. Hertel, Freeburg, Ill.; Geo. E. Hilton, Fremont, Mich.; J. M. Clark & Co., 1409 15th St., Denver, Colo.; Goodell & Woodworth Mfg. Co., Rock Falls, Ill.; J. A. Roberts, Edgar, Neb., and numerous other dealers.

Write for *free* samples, and price list of bee supplies. We *guarantee every inch* of our foundation *equal to sample in every respect*. Every one who buys it is pleased with it.

CHAS. DADANT & SON,
3btfd **Hamilton, Hancock Co., Illinois.**

HERE I COME

To say that E. Baer, of Dixon, Ill., has sold out his supply business to the Goodell & Woodworth Mfg. Co., who will sell V-groove basswood sections at from $2.75 to $4.00 per M. Other supplies correspondingly low. Samples and circular free. Address the **GOODELL & WOODWORTH MFG. CO.,**
3tfdb **ROCK FALLS, WHITESIDE CO., ILL.**

MINNESOTA ✻ ✻ ✻ ✻ AHEAD!

We are selling 100 all-wood L. brood-frames, for $1.00. Langstroth hives with supers, for 55 cents. When sending for circular, make out a bill of what you will want for the season, and we will quote prices to suit the times.
5-6d **WM. H. BRIGHT, Mazeppa, Minn.**

BEES, Queens, Hives, Given Comb Foundation, Apiarian Supplies, German Carp, Small-fruit Plants. Send for catalogue free. E. T. Flanagan, Belleville, Ills.
1-24db.

WRITE TO JOHN CALLAM & CO.,
LUMBER DEALERS, KENTON, OHIO,
—FOR PRICES ON—
BEE-HIVES, SECTIONS,
And General Supplies for Bee-keepers
New Factory. Low Prices. Good Work.
3-14 db

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200 COLONIES of BEES FOR SALE
IN MOVABLE-FRAME HIVES.

Both Hofman and Moon frames. For particulars and prices, address **D. E. FLOYD,**
6-9db **Fort Plain, N. Y.**

FOR SALE IN CALIFORNIA!

On account of the death of the proprietor, J. D. Enas' ranch of 240 acres, part in fruit, 80 stands of bees, steam machinery for the manufacture of supplies, a well-established business; land will be sold in 40 or 80 acre tracts. Stock, farming implements, and a large stock of apiarian supplies. For particulars address **MRS. J. D. ENAS,**
20-6d Box 306. **Napa City, Cal.**

JEWETT POULTRY YARDS.

Rose Comb, Brown Leghorns, Straight-Comb Brown Leghorns, Straight-Comb White Leghorns, Pekin Ducks. $1.00 per sitting of 18 eggs.
4-6d **DAVID LUCAS, Jewett, Ohio.**

BE SURE

To send a postal card for our illustrated catalogue of **APIARIAN SUPPLIES** Before purchasing elsewhere. It contains illustrations and descriptions of every thing new and desirable in an apiary,

AT THE LOWEST PRICES.

ITALIAN QUEENS AND BEES.

J. C. SAYLES,
2 tfd **Hartford, Washington Co., Wis.**

FOR SALE **SEED Potatoes**—Beauty of Hebron; a few Early Ohio; **50 cts.** a peck; **$1 50** per bush. **H. W. McBrid** , Blair, Neb.

Nothing Succeeds Like Success.

I have been successful in the production of Comb Honey for the past ten years, and my little pamphlet "How I Produce Comb Honey," briefly explains the method I pursue. By mail, 5 cts. per copy; per 100, $3.00. My illustrated price list of General Supplies, Bees, and Queens, free. Address
2-7db GEO. E. HILTON, Fremont, Mich.

Bees and Queens-:-Bees and Queens

I am better prepared this summer than ever before to furnish bees by the pound, queens, full swarms, comb fdn., hives, smokers, honey-extractors, and all goods needed in the bee-business. Send for my new price list. No foul brood in my country or yard. **R. E. SMITH,**
6d P. O. Box 72, Tilbury Center, Canada.
Formerly Smith & Jackson.

NO. 1 V-grooved basswood sections, $3.00 per M. White poplar sections, $3.25 per M. All sections sandpapered on one side. Best foundation, brood, 40c per lb.; thin, 45c. Send 2-cent stamp for sample and price list. Direct all orders to

W. D. SOPER,
Jackson, Mich., Box 1473.

LOOK HERE!

I will sell Italian queens from one of A. I. Root's imported queens. One untested queen, $1.00. Tested queen, $2.00. Select tested queen, $3.00. I also give a box of my pure vegetable liver pills free with each queen. Address

DR. L. L. LOOMIS,
6-17db Pemberville, Wood Co., O.

CHENANGO VALLEY APIARY.
HEADQUARTERS IN N. Y. STATE.

If you want **NORTHERN QUEENS** reared from pure Italian stock, imported or golden queens, send me your order. The great popularity of my golden queens last summer has induced me to devote my apiary exclusively to bees and queens the coming season. Prices as follows:

Untested queens in June - - - - -	$1 00
Tested " in June - - - - - -	1 50
Two-frame nuclei in June and July, with untested queen - - - - - - - -	2 00

Reference if desired. Send stamps for reply, to A. I. Root, or National Bank, Sherburn. Send for free circular. MRS. OLIVER COLE,
6tfdb Sherburne, Chenango Co., N. Y.

FREE! My catalogue of Bees, Queens, Apiarian Supplies, Standard Poultry (7 varieties), Japanese buckwheat, Green Mountain and Empire State potatoes. My stock is first-class. You should see my prices for 1888 before you order. CHAS. D. DUVALL,
5tfdb Spencerville, Mont. Co., Md.

TRY Brown Leghorns. You will never keep any other breed. 6d A. F. BRIGHT, Mazeppa, Minn.

DADANT'S FOUNDATION FACTORY, Wholesale and retail. See advertisement in another column. 3btfd

WANTED 1000 CUSTOMERS for Pure Italian bees & queens. Address, MARTIN & MACY,
No. Manchester, Indiana,
Or J. J. Martin & Co., Publishers of Rays of Light.

ARE YOU WANTING Letter Heads, Note Heads, Envelope Corners, Business Cards, Visiting Cards? Send to ROBERT GEDYE,
La Salle, Illinois.

4 STOCKS of pure Italians, on 7 frames, in L. 1½-story hives, for $20.00. Single stock, $6.00. Pure Wyandotte eggs, 75c per 13, 30 for $1.25.
6d C. G. FENN, Washington, Conn.

LUTHER GRAY, Orlando, Fla., Early Italian Queens, $1.00 each. Try my one-frame nuclei, containing 2 lbs. of bees and queen (two crated together) at $3.00 each. Safe arrival guaranteed.
6tfdb

WANTED.—To exchange our Price List of Bee-Keepers' Supplies, etc., for your name on a postal card. Address
4-5-6d JNO. NEBEL & SON, High Hill, Mo.

THE BEE-KEEPERS' REVIEW!

for Feb. is now out. (It has been delayed by the serious illness of its editor.) The special topic of this number is "Temperature," as applied to bee-repositories. So much information upon this topic has probably never before been gathered into so small a space. The treatment is exhaustive, and it would seem that nothing more need be said upon this subject.

Among the contributors to this number are such men as R. L. Taylor, James Heddon, H. R. Boardman, F. Boomhower, T. F. Bingham, J. H. Martin, J. A. Buchanan, and C. C. Miller. Several pages are devoted to editorials upon a variety of live topics. There are also choice extracts from the writings of Prof. Cook, C. W. Dayton, C. C. Miller, and others.

A detailed list of contents will not be published, as a copy will be cheerfully sent to all who ask for it. Price of the REVIEW, 50c a year.

THE PRODUCTION OF COMB HONEY.

A neat little book of 45 pages; price 25 cts. The REVIEW and this book for 65 cts. Stamps taken, either U. S. or Canadian. Address

W. Z. HUTCHINSON,
10tfdb **Flint, Mich.**

HEADQUARTERS IN THE WEST FOR PURE ITALIAN BEES and QUEENS.

Full colonies, from $5.00 to $9 00 each; 2-frame nucleus, untested queen, in May, $2.50; June, $2.25; after, $2.00; 3-frame, in May, $3.50; June, $3.00; after, $2.50. With TESTED queen, add 50c more. Bees, per lb., in May, 90 cts.; June, 75 cts.; after, 60 cts. Untested queens in May, $1.00; after, 75 cts.; six, $4.00. Tested, in May, $1.50; after, $1.25. Write for circular of Bees, Queens, Sections, Foundation, etc.
6-21d Address JNO. NEBEL & SON, High Hill, Mo.

100 Colonies of Italian bees in Simp. hives, for sale cheap. 6d A. F. BRIGHT, Mazeppa, Minn.

Bee-Keepers, Take Notice.

I will, from now until May 15, 1888, sell V-groove one-piece basswood sections, made on A. I. Root's new improved machinery, planed on the outside, at a great reduction. Send a 2-cent stamp and get a sample and price list of them, as I am sure to please you. Address R. H. SCHMIDT,
6d Caroline, Shawano Co., Wis.

BROOD FOUNDATION, 30 C. PER LB. W. T. LYONS, Decherd, Franklin Co., Tenn.

FOR CASH.

Pure Italian queens in April. One untested, $1.00; one-half dozen, $5.50; per dozen, $10.00. In May and after, one-fourth less. Guarantee safe arrival.
67d Address D. E. ALDERMAN, Clinton, Sampson Co., N. C.
6-7d

WANTED, Persons who wish early queens, to know that I have the best pure Italians. You want good ones—those are the kind I ship—hardy, prolific, and which produce the best of honey-gatherers. Satisfaction guaranteed. Best of references given. R. H. CAMPBELL,
6d Madison, Morgan Co., Ga.

Black and Hybrid Queens For Sale.

For the benefit of friends who have black or hybrid queens which they want to dispose of, we will insert notices free of charge, as below. We do this because there is hardly value enough to these queens to pay for buying them up and keeping them in stock; and yet it is oftentimes quite an accommodation to those who can not afford higher-priced ones.

Ready to mail now, 20 mismated queens, Italians, at 50 cts. each. G. OBERKAMPF,
Crane's Mills, Comal Co., Texas.

Wants or Exchange Department.

Notices will be inserted under this head at one-half our usual rates. All ad's intended for this department must not exceed 5 lines, and you must SAY you want your ad. in this department, or we will not be responsible for any error. You can have the notice as many lines as you please; but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale can not be inserted under this head. For such our regular rates of 20 cts. a line will be charged, and they will be put with the regular advertisements.

WANTED.—A bee-keeper to take charge of my apiary, on shares. ROBERT BLACKLOCK,
4-8db Kilgore, Boyd Co., Ky.

WANTED.—Correspondence on apples, potatoes, seed-potatoes, cabbage, onions, small fruit, and fruit and produce generally. Consignments solicited. Will quote market at any time.
EARLE CLICKENGER,
4tfdb General Commission Merchant,
119 East Town St., Columbus, O.

WANTED. To exchange for any thing of a standard market value, full colonies of Italian bees on 8 L. or Simplicity frames, in shipping-boxes, at $4.00 per colony.
5tfdb W. A. SANDERS, Oak Bower, Hart Co., Ga.

WANTED.—To exchange one first-class incubator, the "Perfect Hatcher," for bees or wax.
H. O. SALISBURY, Geddes, Onondaga Co., N. Y.

WANTED.—To work wax and exchange fdn. for bees, eggs of best strains of poultry, and strawberry-plants. C. H. MCFADDEN,
5-6-7d Clarksburg, Moniteau Co., Mo.

WANTED.—To exchange a Towmbly knitting-machine, with both fine and coarse plates, in first-class order, for bees or supplies. Address
6-7d J. GARDNER, Westville, Ind.

WANTED.—To exchange 3 Novice honey-knives, Cook's Manual, 7 upright show-cases, 16x26 in., double-barrel (English twist) shot-gun and case, and tested Italian queens, in June, for thoroughbred poultry and eggs. P. Rocks and W. and L. Wyandottes preferred. C. H. WATSON,
6-7d Newtown, Bucks Co., Pa.

WANTED.—To exchange Quinby Chaff Hives, with 10 standing frames, one 4-frame honey-extractor, new, for beeswax, foundation, or offers.
MRS. OLIVER COLE,
6tfdb Sherburne, Chenango Co., N. Y.

WANTED.—To exchange a bicycle, 54-inch American Challenge, for bees and supplies. A bargain.
6-7d E. CARTER, 611 Hampton St., Bay City, Mich.

WANTED.—To exchange 250 colonies of bees, for horses, mules, wagons, buggies, and 4 h. p. engine, or any thing useful on a plantation.
21tfd ANTHONY OPP, Helena, Phillips Co., Ark.

WANTED.—To exchange W. F. B. Spanish and Brown Leghorn eggs, from first-class fowls, for any hardy raspberry plants. Moore's Early or Niagara grapevines, or any good strawberry plants.
JOHN BURR, Braceville, Grundy Co., Ill.

WANTED.—To exchange Johnston's Sweet-raspberry plants, for new varieties of strawberry, raspberry, and blackberry, or plum and sour-cherry trees. 7-10db P. SUTTON, Exeter, Luz. Co., Pa.

WANTED.—To exchange a full-blood Jersey cow, six years old, her progeny all heifers, will be fresh first of July, bred to registered Jersey, for Simplicity hives and bees. H. LOGSDON,
7d Beck's Mills, Holmes Co., O.

WANTED.—To exchange bees in Heddon hives, for a light one-horse buggy.
79db S. C. KIRKPATRICK, Hodgenville, Ky.

WANTED.—To exchange Cuthbert red-raspberry roots, and Tyler black-cap, for 1-lb. sections, fdn., beeswax, pounds of bees with queen, or female ferrets. 7-8d M. ISBELL, Norwich, N. Y.

WANTED.—To exchange eggs of thoroughbred Langshan and Black Minorca chickens, also pair of Wyandotte chickens, for beeswax, comb fdn., tested queens, Flobert rifle, printing-press and outfit, type-writer, or any thing useful.
7d E. P. ALDRIDGE, Franklin Square, Col. Co., O.

WANTED.—To exchange best queen and drone trap made, for extractor or bee-supplies. Everybody send for circular. J. A. BATCHELDER,
Keene, N. H.

WANTED.—To exchange 4 ducks and 1 drake, thoroughbred Pekins, and P. Rock eggs, fine stock, for comb fdn. or bees. L. W. LIGHTY,
Mulberry, Pa.

WANTED.—To exchange reliable vegetable and flower seeds, also plants, for printing-press in good order. GEORGE MITCHELL,
7d La Camas, Wash. Ter.

WANTED.—To exchange 50,000 raspberry-plants, Turner, Cuthbert, and Philadelphia, for fence-wire, wire for grapevines, poultry-netting, paint, nails, or any thing I can use on a small-fruit or bee farm. Address R. P. LUPTON, Excelsior, Minn.

WANTED.—To exchange bees by the pound, for one Houdan cockerel, and one Plymouth Rock cockerel. Write before you ship the birds.
7d THOMAS GEDYE, La Salle, La Salle Co., Ill.

WANTED.—To exchange eggs, for foundation, bees, or supplies. P. W. CORYA, M. D.,
Moore's Hill, Dearborn Co., Ind.

NEW AND SECOND-HAND FOUNDATION-MILLS AT REDUCED RATES.

We have on hand the following fdn. mills that we desire to dispose of; and to do so we quote these special prices: One 14-inch mill, made about 2 years ago, but has never been used. This mill makes fdn. with the round, or improved cell. It is as good a mill as we could make a year ago; but with our new machine for cutting the rolls we do much better work now, hence we offer this mill at the very low figure of $25.00. Regular price $40.00.

One 12-inch mill, second-hand; has been used about one season, but is in good order. We will sell for $15.00. Regular price $30.00.

One 10-inch mill, made about 3 years ago; has been used almost none; it is at Church Creek, Md. Regular price, $20.00. Will sell for $15.00.

One 6-inch drone-mill, new; never been used; just right for making thin drone fdn. for section boxes. Regular price $15.00. We will sell it for $13.00.

One 6-inch Olm mill, made 6 or 7 years ago; has been used a little, but will do nicely for one who wants to make his own fdn. We will sell it for $8.00.

One 6-inch Pelham mill. A new machine, never been used. We took it in exchange for one of our make. Will sell it for $8.00.

A. I. ROOT, Medina, O.

Black and Hybrid Queens For Sale.

For the benefit of friends who have black or hybrid queens which they want to dispose of, we will insert notices free of charge, as below. We do this because there is hardly value enough to these queens to pay for buying them up and keeping them in stock; and yet it is oftentimes quite an accommodation to those who can not afford higher-priced ones.

FOR SALE.—A few hybrid Italian queens; three for $1.00. W. P. DAVIS, Goodman, N. C.

I will have 10 black queens ready to mail May 1st, at 30 cts. each. I have also a few mismated Italians at 50 cts. each, all of 1887 rearing. Stamps taken. Satisfaction guaranteed.
FRED LEININGER, Douglas, Putnam Co., Ohio.

HERE I COME

To say that E. Baer, of Dixon, Ill., has sold out his supply business to the Goodell & Woodworth Mfg. Co., who will sell V-groove basswood sections at from $2 75 to $4.00 per M. Other supplies correspondingly low. Samples and circular free. Address the **GOODELL & WOODWORTH MFG. CO.,**
3tfdb **ROCK FALLS, WHITESIDE CO., ILL.**

New Orleans Apiary.

I will breed and mail guaranteed pure Italian queen-bees from the best stock for business, for one dollar each, the coming season. Orders solicited, and queens mailed upon the receipt of order. I will also sell 350 colonies of Italian bees in Langstroth hives, cheap, or any number of colonies to suit purchaser. I can ship by river, railroad, or steamship to any point. Address
6tfdb **J. W. WINDER, New Orleans, La.**

FOUNDATION, 10-lb. lots or more, 35 cts. per lb.
5tfdb **JAS. McNEIL, Hudson, N. Y.**

HEADQUARTERS For Cards and Stationery for Bee-keepers and Others.

Besides our beautiful eight-color chromo card, we have other neat designs, also a fine selection of fancy address cards, for old and young, for business and amusement. Also two and three letter monograms, all at low prices. **See Here,** 50 fancy printed cards, 15 cts.; 300 envelopes, 300 letter-heads, printed, $1. Package 25 assorted cards, 10 cts. Neat box of cards and honey candies, 15 cts. Circulars free. Address J. H. MARTIN, Hartford, N. Y.
20tfdb

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Pure Italian queens in April. One untested, $1.00; one-half dozen, $5 50; per dozen, $10.00. In May and after, one-fourth less. Guarantee safe arrival.
67d Address D. E. ALDERMAN, Clinton, Sampson Co , N. C.
6-7d

LOOK HERE! 20 fresh eggs in season, for only $1.00; also agent for thoroughbred Cattle, Swine, and Sheep, of fine pedigree, and Silver live-stock powder. Write for what you want. Orders filled in rotation. 5-8db

Fillmore Decker, New Florence, West'd Co., Pa.,
Breeder of Pure Brown Leghorn Fowls.

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COLONIES,
Nuclei and Queens
At Living Rates.
Send for Circular and Price List to
C. C. VAUGHN,
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HONEY-EXTRACTOR,

SQUARE GLASS HONEY-JARS,
TIN BUCKETS, BEE-HIVES,
HONEY-SECTIONS, &c., &c.
PERFECTION COLD-BLAST SMOKERS.

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CINCINNATI, O.

P. S.—Send 10-cent stamp for "Practical Hints to Bee-Keepers." 1tfdb

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3btfd **Hamilton, Hancock Co., Illinois.**

4 YOU BUY

your supplies for 1888, send for my 32-page illustrated Catalogue, describing my new reversible-frame hive and T super. They are perfection. Address **E. S. ARMSTRONG,**
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BEE-KEEPERS' SUPPLIES.

HIVES, FRAMES, CASES, SECTIONS, COMB FOUNDATION, ETC.

Send your address for FREE CIRCULAR to
REYNOLDS BROS.,
5tfdb **Williamsburg, Ind.**

Nothing Succeeds Like Success.

I have been successful in the production of Comb Honey for the past ten years, and my little pamphlet "How I Produce Comb Honey," briefly explains the method I pursue. By mail, 5 cts. per copy; per 100, $3.00. My illustrated price list of General Supplies, Bees, and Queens, free. Address
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200 COLONIES of BEES FOR SALE
IN MOVABLE-FRAME HIVES.

Both Hofman and Moon frames. For particulars and prices, address **D. E. FLOYD,**
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LUMBER DEALERS, KENTON, OHIO,
—FOR PRICES ON—

BEE-HIVES, SECTIONS,

And General Supplies for Bee-keepers

New Factory. Low Prices. Good Work.
3-14 db

WANTED 1000 CUSTOMERS for Pure Italian bees & queens. Address, MARTIN & MACY,
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Or J. J. Martin & Co., Publishers of Rays of Light.

FREE! FREE! FREE!

Don't fail to send your address on a *postal card* for the March number of the **American Apiculturist.** 'Tis filled with essays on "PRACTICAL HINTS TO BEE-KEEPERS," from the pens of the best-known writers on apiculture. SENT FREE.
Address *APICULTURIST, Wenham, Mass.*
4tfdb

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One colony Italians, on nine Gallup frames, in light shipping-box.	$ 7 00
Five colonies	30 00
Ten colonies............	50 00
One untested queen....	1 00
Three untested queens	2 00
One untested queen reared by natural swarming......	1 50
Three ditto............	3 00
One tested queen......	2 00
Three tested queens...	4 00
One tested queen by natural swm'g............	3 00
Three ditto............	6 00
Tested queens, 1887 rearing, each........... ...	4 00
Extra, selected for breeding, two years old....	10 00

I also have at Arcade, N. Y., 200 colonies, strong and healthy, of the Heddon noted strain of brown German and hybrid bees, on Baldwin frames, which I will sell, free on board the cars, nine combs each, in shipping-boxes, safe arrival guaranteed, during the month of May, as follows: 1 to 10 colonies, at $5.00 each; 10 to 50, at $4.75 each; 50 to 200, at $4.50 each. If they are preferred in hives, add $1.00 each for hive. Circular free, giving full particulars regarding the bees, and each class of queens. Address **G. M. DOOLITTLE,**
5-13d Borodino, Onondaga Co., N. Y.

ITALIAN QUEENS BEE-HIVES,

T-TIN CASES, SECTIONS, METAL CORNERS,

Honey-Extractors, and Fruit-Boxes.
3tfd *SEND FOR PRICE LIST.*
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Headquarters in the West

ITALIAN BEES and QUEENS.

Full colonies in 10-frame Simplicity hives, $8.00. Tested queens, in May, $2.50. Dollar queens after June 15th, $1.00. July, 90c. In the 7 years we have shipped bees and queens, have not had one single complaint.

BROWN LEGHORN EGGS.

Todd strain, No. 1 stock, with unlimited range, $1.00 per 13; $1.50 per 26. Safe arrival guaranteed. Illustrated catalogue free.
5tfd A. F. BRIGHT, Mazeppa, Minn.

Oliver Foster, of Iowa.

Italian bees, 60 cts. per lb. in July, to $1.00 in April. Pkgs. with queens, brood, etc., cheap. *No foul brood near.*
BEE SUPPLIES.—Best sections, cases, and hives. Catalogue free. Send 5 one-cent stamps for pamphlet, "HOW TO RAISE COMB HONEY,"—chuck full of practical information "in a nutshell."
4-15db Address OLIVER FOSTER, Mt. Vernon, Ia.

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PURE ITALIAN BEES

In best hives, double-walled, in winter; 8 frames, 12¼x12¼ in. each, at $5.00 per colony; or same in light strong shipping-boxes, 75 cts. less. Discount on large lots. **DR. G. W. YOUNG,**
3-5-7d **Lexington, Mo.**

2 SIMPLICITY B-hives, 2 covers, 10 brood-frames, 7 wide frames, and 56 one-piece 1-lb. sections, all in flat, $1.10. Leconte, Kieffer's Hybrid, and Bartlett pear-trees, 20 cts. each; 13 White-Leghorn chicken eggs, 50 cts.
3-5-7d T. A. GUNN, Tullahoma, Tenn.

WANTED.—The bee-keepers in vicinity of N. Y. City, to buy the **Van Deusen Hive-Clamp** from me (I keep a stock on hand), at regular manufacturer's prices. T. O. PEET,
3d 27 Park Row, N. Y. City.

WE HANDLE THE BEST SUPPLIES

OF ALL MANUFACTURERS.

We also make the best smoker on the market. All dealers should handle it. Send for wholesale list. It should be in every apiary; let every bee-keeper send for my illustrated catalogue, free. All implements used in an apiary, sold at reasonable rates. Beeswax bought at GLEANINGS quotations.
3-10db **W. E. CLARK, Oriskany, N. Y.**

FREE! FREE! FREE!

Upon application. Our 28th Annual Price List. A full line of

BEE-KEEPERS' SUPPLIES.

CHOICE COMB FOUNDATION AND WHITE-POPLAR SECTIONS A SPECIALTY.

100 COLONIES OF CHOICE ITALIAN BEES

for sale cheap. Also NUCLEUS COLONIES and QUEENS. Orders booked now. Address
WM. W. CARY & CO.,
3tfdb **Colerain, Franklin Co., Mass.**
Successors to WM. W. CARY. (Please mention GLEANINGS.)

FOR SALE.

Italian Queens and Bees by the Colony, Nucleus, and Pound. Dealer in Bee-keepers' supplies. Address **OTTO KLEINOW,**
5tfdb (Opp. Fort Wayne Gate), Detroit, Mich.

BEES, Queens, Hives, Given Comb Foundation, Apiarian Supplies, German Carp, Small-fruit Plants. Send for catalogue free. E. T. Flanagan, Belleville, Ills.
1-24db.

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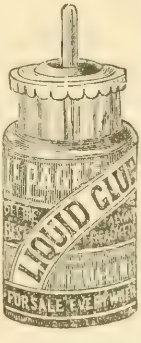

Few words of praise are necessary for this excellent article, so widely known and advertised. It is one of the best of liquid glues. Always ready for use. Mends every thing. We have 4 different-sized packages.

Glass bottle like the adjoining cut for 10 cts.; 75 cts. for 10; $7.00 per 100. Half-gill tin cans with screw cap, and brush fastened to inside of cap, price 15 cts. each; $1.10 for 10; $10.50 per 100. This latter can be sent by mail for 10c. extra for postage and packing.

Gill tin can with brush, 20 cts.; 10 for $1.50; 100 for $14.00; ½-pint tin cans, no brush, 25 cts.; $2.20 for 10; $21.00 per 100.

LePage's MUCILAGE, in large bottles, with a nice enamel-handle brush, at 10 cts. each; 75 cts. for 10; $7.00 per 100. This is the best mucilage made, and will do nicely in many cases for glue, although it is pretty thin to be used as glue.

A. I. ROOT, Medina, O.

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TESTED QUEENS AT ONE DOLLAR EACH.

We do not send out warranted queens. Our Tested Queens are sold at the price asked for warranted.

Our queens are from imported mothers, are LARGE, LIGHT, PROLIFIC, and, ABOVE ALL, A PLEASURE TO HANDLE, and will prove A No. 1 in every respect. SATISFACTION GUARANTEED. See ad. in GLEANINGS March 1.

Untested queens - - - - - - -	$ 75
3-frame nucleus, 3 lbs. bees, tested queen -	3 00

Orders filled promptly by return mail. Special rates to dealers.

Write for price list.

J. W. K. SHAW & CO.,
(Iberia Parish.) **LOREAUVILLE, LA.**

J. P. Caldwell, of San Marcos, Tex.

Pure Italian queens.	April.	May.	Jun. to Oct.
Select tested	$2 75	$2 25	$1 75
Tested	1 75	1 50	1 25
Untested	1 00	90	75
Six untested	5 00	4 40	3 75
Twelve untested	9 50	8 00	7 00

All queens will be shipped in cages which answer the double purpose of an introducing and shipping cage. Address J. P. CALDWELL, San Marcos, Tex.
7-18db

DR. G. L. TINKER,

MANUFACTURER OF

Open-Side White-Poplar Sections,

the best-made sections ever offered to bee-keepers. The best-made perforated zinc. The best-made and only perfect wood and zinc honey-boards. Western agent for Crawford's Section Cartons. Sample section, zinc, and beautiful wood cards, 3 cts. Catalogue free. Address **DR. G. L. TINKER,**
7-10db **New Philadelphia, O.**

MY 20TH ANNUAL PRICE LIST OF ITALIAN, CYPRIAN, and HOLY-LAND BEES, QUEENS, NUCLEUS COLONIES, and APIARIAN SUPPLIES, sent to all who send me their name and address.
7-15d *H. H. BROWN, Light Street, Col. Co., Pa.*

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HOW TO GROW THEM IN THE LARGEST QUANTITY, AND OF THE FINEST QUALITY, WITH THE LEAST EXPENDITURE OF TIME AND LABOR.

Carefully Considering all the Latest Improvements in this Branch of Agriculture up to the Present Date.

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to your interest. Now is the time. Strike while the iron is hot. It is smoking and sizzling now. Strictly pure, straight, nice, fresh, and clean **FOUNDATION,** 34 cts. a lb. Bound to please. Made and sold tons in three seasons. Not one dissatisfied customer. Jersey hives our specialty. $2.50 will buy one. **MODEL B. HIVE CO.,**
W. Phila., Phila. Co., Pa.

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I will sell my complete apiary and outfit at a very low price. Any one about to invest in bee-keeping will do well to address

PHILIP H. LUCAS,
Mount Vernon, West Chester Co., N. Y.

ITALIAN QUEENS

Untested, May, $1.25; June, $1.00; July, 90 cts. Send for 16-page ILLUSTRATED PRICE LIST of Bees, Queens, Chaff Hives, Barnes Foot-power Saws, Langdon Miter-Boxes, and Apiarian Supplies. Address

WILLIAM E. GOULD,
Fremont, Newaygo Co.,
7-9db **Michigan.**

HELP THE AFFLICTED.

I have 50 colonies of bees in Langstroth Hives to sell for an afflicted brother, at $5.00 per colony, or five or more, $4.50 per colony. Safe arrival guaranteed. **GEO. E. HILTON,**
Fremont, Newaygo Co., Mich.

FOR SALE. One fine Wyandotte cockerel; price $2.00. Speak quick. W. K. LEWIS, Dry Ridge, Ky.

THE A B C OF BEE CULTURE.

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AVERAGE SALE, 200 PER MONTH.

In ordering please state distinctly whether you want cloth or paper binding.

Single copies, cloth bound, postpaid by mail, $1.25; same as above, only paper covers, $1.00. From the above prices there can be no deviation to any one; but each purchaser, after he has paid full retail price for one book, may order the cloth-bound to any of his friends on payment of $1.00, or the paper cover at 75 cents each. This discount we give to pay you for showing the book, explaining its worth, etc. If you order them by express or freight, you may take off 15 cts. from each cloth-bound book, or 12 cts. for each one in paper covers. Of course, it will not pay to do this unless you order a number at a time, or order them with other goods. To those who advertise A B C books in their price lists and circulars, a discount of 40% from retail prices by mail will be made, and this discount will be given to all booksellers and newsdealers. To any one who purchases 100 at one time, a still further discount will be made, to be given on application, and the 100 may be made up of part cloth and part paper, if desired. Purchasers are requested not to sell single books at less than the regular retail prices, although they may sell two or more at any price they think proper; or the A B C may be clubbed with any other book or periodical, at such prices as the agent thinks proper.

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A. I. ROOT, Medina, O.

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KIND WORDS FROM OUR CUSTOMERS.

It seems to me that GLEANINGS is now all that could be expected for the money. J. W. WEST.
Martinsville, O., Mar. 21, 1888.

Although not bee-keepers, we consider GLEANINGS a necessity at our house. A. F. BEACH.
Larabee, Pa., Feb. 21, 1888.

Let us have more like Terry's piece in GLEANINGS where he says, "We want to try to do all we can for the queen of our homes. I like that name.
Hatfield, Pa., March 16, 1888. MRS. S. S. KRATZ.

GLEANINGS A HELP TO SUCCESS.

I enjoy reading GLEANINGS very much, and should not like to do without it, for it has helped us to make a success of bee-raising. We started out a year ago with two swarms of black bees, and without any knowledge of bees either; but by the help of your journal and a little instruction from a friend we have now five swarms of Italian bees.
Orlando, Fla., March 7, 1888. MRS. A. L. FORD.

THAT WHEELBARROW.

I can not speak too highly of the bee-keepers' wheelbarrow I received from you about a month since. As I live in the edge of town, it is just the thing to wheel light things to market and a colony of bees to the depot for shipment, and many other uses I find for it. The boys come to my place and quarrel as to who shall run it. I get all my wheeling done for nothing, as they like it so well.
Rossville, Kan., Mar. 13, 1888. M. F. TATMAN.

GLEANINGS AS AN ADVERTISING MEDIUM.

Find inclosed thirty cents due you for advertising. The advertisement brought more letters than I can reasonably answer. DAVID HADLEY.
Alva, Florida, Feb. 19, 1888.

[We are glad, friend H., to know that you were pleased with the result of your advertisement; but no wonder, for you advertised for somebody to work for you. I presume if I were to put a similar advertisement in GLEANINGS we should get more letters than all the clerks in our office could answer. In fact, I have been obliged to advertise regularly in our county paper, "No more help wanted."]

I thought I could get along without GLEANINGS, and told you to stop it in December; but I must have it again. Some of the other bee-papers are good, but somehow I miss the cuts that I used to see in GLEANINGS. Stick to the illustrations; nothing explains a thing so well as drawings.
Macleay, Oregon, Feb. 21, 1888. DAVID CRAIG.

The Home Papers have been a great comfort to me. May you be spared many years, and go on with the good work. I should like to shake hands with friend Terry and his wife. I believe he gives us women more credit than the most of men will. I know women who never saw the inside of the pocket-book; and if one asks for a little money, may be husband thinks she is extravagant, and the poor wife feels hurt, and would rather do without things than to ask for more. N. A. E. ELLIS.
Astoria, Mo.

Inclosed please find express order for my renewal to GLEANINGS. It amuses me greatly how you get off things in print of practical importance. I guess you have great opportunities to study human nature, besides thousands of other things. No wonder you are always busy. I wonder how you get around to attend to them all and study your sermon besides. I can't imagine how you get time for that half-hour sleep just before dinner, and, after falling asleep, not sleep too long and miss your dinner while warm. C. THEILMANN.
Theilmanton, Wabasha Co., Minn.

DON'T STOP.

Don't stop GLEANINGS, for I will muster up enough in the spring to balance all dues. I never was attached to any periodical or journal as I am to GLEANINGS. Friend Root, you certainly are a friend to the upright honest man. Adversities and misfortunes have overtaken me; many of my calculations have been disappointed, and I've been about persuaded to give up my strife for life; but God said to me, "Forsake your evil ways, and I will give you a new life." A New Year's life dawned upon me, and I resolved to work for my Master, let come what will. Like Job, "though he slay me, yet will I trust in him." W. H. SWIGART.
Dixon, Ill., Feb. 25, 1888.

10 Cts. 1 Year.

BEST GARDENER AND FRUIT-GUIDE,

ONE EVERY MONTH, WORTH $5.00.

Good Seeds and good plants are not all; you must know how to use them right to reap success. Found cheapest and best in **THE AMERICAN GARDEN.** Largest, finest, handsomest magazine of horticulture in existence. Its practical writers are famous and successful gardeners, fruit-growers, florists, and scientists in all sections. Price $1 a year; 10 cts. a copy. **A Year's Subscription Free to the 1st and Every 5th Applicant** mentioning this paper and its date, and **Sending 10 Cts.** for our great March issue, and full directions for making The American Garden **"Cosey"** for **Protecting Plants from Frost, Insects,** etc.

Address **THE AMERICAN GARDEN, 751 Broadway, New York.**

FOR SALE. Given fdn. dies, L. size; press for same, home made, but good and strong, dipping tank and boards. Price $20.00. Also, home-made circular-saw rig, three saws (two, 5 in., one, 4 in.), all gauges, etc. All in good working order. Price $15.00. Address
7d H. E. HARRINGTON, Walden, Cal. Co., Vt.

V-GROOVED ONE-PIECE SECTIONS

planed on one side, $2.50 per 1000. Sample free.
M. A. LOHR,
7d **Vermontville, Eaton Co., Mich.**

Apiarian Supplies

—IN—

PENNSYLVANIA.

Do not send long distances for your goods, when you can get them near home. Shipping facilities good. Send your name on postal card for price list to **C. P. BISH,**
7tfd St. Joe Station, Butler Co., Pa.

HONEY COLUMN.

CITY MARKETS.

Cincinnati.—*Honey.*—There is no change to note. Demand is good for extracted honey in all shapes. Arrivals are fair. It brings 4½@9c on arrival. Demand for comb honey is very slow, with a large supply on the market. It brings 14@17c in the jobbing way. *Beeswax.*—Demand is good, with fair arrivals. It brings 20@22c on arrival for good to choice yellow. **Chas. F. Muth & Son,**
March 24. Cincinnati, O.

St. Louis.—*Honey.*—We have nothing new to report in the honey market. Trade is pretty well over for this season. Choice white-clover honey, comb, 1-lb. sections, selling slowly at 16@18c; extracted, in small cans, 8@9c; in bbls., 6@7; Southern honey, as to quality, in bbls., 4@5½. *Beeswax* is in good demand. Prime, in round lots, 23c; selected, on order, 26c **W. B. Westcott & Co.,**
March 22. St. Louis, Mo.

Chicago.—*Honey.*—The demand is very light, and even the low figures now prevailing do not seem to stimulate consumption to any extent. Quote 1-lb. sections, 15@18; and off in color or condition, 14@15. Dark comb, no demand. Extracted, 7@9c, according to grade. *Beeswax*, 22@23. **R. A. Burnett,**
March 21. 161 So. Water St., Chicago, Ill.

Columbus. — *Honey.*—Comb honey is very quiet at 15@18c; extracted honey, no change in price, and no demand. *Beeswax.*—None to speak of.
Earle Clickenger,
March 22. 119 E. Town St., Columbus, Ohio.

Boston.—*Honey.*—We quote: 1-lb. sections, white, 16@17; 2-lbs., 14@16. *Beeswax.*—25c. Sales slow.
Blake & Ripley,
March 22. 57 Chatham St., Boston, Mass.

St. Louis.—*Honey.*—Market bare. Extracted and strained, in bbls., 6½@7½. Comb, slow, at 17@19. *Beeswax.*—Prime, 22c. **D. G. Tutt & Co.,**
Mar. 22. 206 N. Commercial St., St. Louis, Mo.

Kansas City.—*Honey.*—Market is weak and lower; 1c per lb. off. This market is well supplied.
Clemons, Cloon & Co.,
March 22. Kansas City, Mo.

Albany.—*Honey.*—Market quiet. Stocks light, and prices unchanged. Season about over.
H. R. Wright,
March 26. 328 Broadway, Albany, N. Y.

New York.—*Honey.*—Honey is moving slow; low prices and slower demand.
Thurber, Whyland & Co.,
Mar. 21. New York City.

Detroit.—*Honey.*—Best white comb honey in 1-lb. sections is now quoted at 15@16c; not much in sight, but no demand. Ext'd, 8@10. *Beeswax*, 22@22c.
Bell Branch, Mich., Mar. 22. **M. H. Hunt.**

For Sale.—1000 lbs. extracted, clover honey, in 60-lb. cans, at 9c per lb.; sample 6c.
J. B. Alexander (Nurseryman),
Hartford City, Ind.

For Sale.—2400 lbs. extracted honey, principally clover, and a little basswood, all of which is good and well ripened, put up in oak kegs, 15 gal. and 10 gal.; average weight 180 lbs. and 125 lbs. Price per lb., 10 cts. and 10½ cts. here on board cars. No charge for kegs. Sample 5 cts.
Mont. Wyrick, Cascade, Dubuque Co., Iowa.

CONVENTION NOTICES.

The first meeting, for 1888, of the Fayette Co. Bee-keepers' Association will be held at the residence of J. W. Gillispie, Washington C. H., on Thursday, April 26th, at 10 A.M. A full attendance is desired, as the annual election of officers takes place.
S. R. Morris, Sec'y.

The tenth annual meeting of the Texas State Bee-keepers' Association will be held at the bee-yards of Vice-president W. R. Graham, Greenville, Hunt Co., Texas, May 2d and 3d, 1888. A leading feature of the convention will be criticisms upon subjects that have gone through the bee-journals. All Texas and Arkansas bee-keepers are expected to be present. All are cordially invited. No hotel-bills to pay. B. F. Carroll, Sec'y.

The annual meeting of the Western Bee-Keepers' Association will be held at Independence, Mo., at the court-house, on the 25th of April, 1888. The meeting will be carried on as a sociable, friendly gathering. Take your baskets with you and let us have a good time. A cordial invitation is extended to all. Peter Otto, Sec.

PRICE LISTS RECEIVED.

Since our last we have received price lists from the following persons:

J. E. Pryor, Dexter, Iowa; an 8-page list of hives, etc.

C. M. Hicks, Fairview, Md.; a 4-page list of queens, etc.

D. E. Mater, Clare, Mich.; a 4-page list of hives, sections, etc.

J. W. K. Shaw & Co., Loreauville, La.; a 4-page list of Italian queens.

E. L. Goold, Brantford, Ont., Canada; a 20-page list of bee-keepers' supplies.

C. F. Rood, Romeo, Mich.; a list of supplies, printed on Martin's chromo cards.

S. W. Morrison, Oxford, Pa; a 4-page circular relative to Carniolan queens.

G. H. Kirkpatrick, New Paris, Ohio; a 12-page list of supplies, queens, and honey.

J. W. Krewson, Drain, Oregon; a 4-page circular relative to hives and supplies in general.

G. K. Hubbard, La Grange, Ind; a 12-page circular, describing the "Hubbard" hive and fixtures.

Oliver Foster, Mount Vernon, Iowa; his circular and price list of Italian queens, supplies, etc.

A. O. Crawford, South Weymouth, Mass.; a 20-page list of specialties, mostly labels; very pretty.

W. W. Bliss, Duarte, Cal.; a nice business card relative to foundation, and supplies in general; also an 8-page list.

The largest list we have ever yet received is one of 72 pages, from Abbott Brothers, Southall, London, England. Price 2 pence.

J. H. Howard, Holme, near Peterborough, England, issues a 48-page list of hives, feeders, extractors, etc. It is very nicely printed, and fully illustrated.

C. H. Smith, Pittsfield, Mass.; a little work on bees. The first 18 pages relate to the different races of bees and how to handle them; after this, 30 pages of matter relating to bee-supplies.

The D. A. Jones Co., Beeton, Canada; a 20-page list of every thing pertaining to bees. We notice described and illustrated their new section-crate and honey-board. Oh, yes! a regular counter-store of 5 and 10 c. articles will be found in the back part of the catalogue.

The following were printed at this office:

S. P. Yoder, East Lewistown, Ohio; a chromo advertising card of bees, queens, and poultry.

Dr. L. L. Loomis, Pemberville, Ohio; an advertising card of bees, queens, and nuclei.

IMPORTANT!

QUEENS to be shipped by return mail, when ordered. It is best to get two and four frame nuclei when ordering bees. Choice, fine, solid red and yellow Italian queens, at the following prices: Untested, from now through the season, $1.00; tested, $2.00; select tested, $2.50; standard breeders, $3.00. Bees by the pound, $1.00; frame of brood, 75 cts. My bees are gentle Italians, with great power of wing, and fine honey-gathering capacity. No foul brood, no moth. 7-18db

R. H. CAMPBELL,
LOCK BOX 215. **Madison, Morgan Co., Ga.**

Italian Queens Now Ready.

Tested, $1.00; untested, 75 cts.; after May 15th, 60 cts. Bees, per lb, 50 cts. to all who will send cages to ship them in. C. C. KIRKMAN,
7d Coxville, Pitt Co., N. C.

FOR SALE CHEAP.

The following articles: One section-box machine, one cutter-head for making the entrance to section-boxes, one mandrel with dovetailing saws, one planer, for planing hives and sections, one mandrel, two 10-in. saws, one 8 and one 9 in. saw, two 6-in. saws; one 6-in. dovetailing saw. Machinery as good as new. THOMAS GEDYE,
La Salle, La Salle Co., Ill.

Eggs · for · Hatching.

P. Rocks, 1st pen, $1.00; 2d pen, 75 cts. Langshans $1.50 for sittings of 14 eggs. Warranted pure. Satisfaction given. MRS. C. E. HATCH,
Kentland, Newton Co., Ind.

GLEANINGS IN BEE CULTURE.

DEVOTED TO BEES, HONEY, & HOME INTERESTS.

Vol. XVI. **APR. 1, 1888.** **No. 7.**

TERMS: $1.00 PER ANNUM, IN ADVANCE; 2 Copies for $1.90; 3 for $2.75; 5 for $4.00; 10 or more, 75 cts. each. Single number, 5 cts. Additions to clubs may be made at club rates. Above are all to be sent to ONE POSTOFFICE.

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A. I. ROOT, MEDINA, OHIO.

Clubs to different postoffices, NOT LESS than 90 cts. each. Sent postpaid, in the U. S. and Canadas. To all other countries of the Universal Postal Union, 18 cts. per year extra. To all countries NOT of the U. P. U., 42 cts. per year extra.

SMALL SECTIONS OF HONEY.

A FIVE-CENT PACKAGE OF COMB HONEY, ALREADY WORKED OUT AND IN THE MARKET.

IT was just 12 o'clock at night when I reached my sister's in Manistee; and my leave of absence was so brief that I had to leave at 12 o'clock next day at noon; and during these brief hours I was to see my sister and the little flock of eight around her. Some of them I had never seen before at all. Then, of course, I must look at my brother-in-law's store and fine business; and, knowing where my curiosity lay, he took me to see their "farm" as they called it, a few blocks away, and which consisted, perhaps, of five acres, more or less. I admired the plum-trees (they are great on plum-trees in Manistee), and I admired the strawberries and their beautiful sandy soil that seems so specially adapted to fruit culture. Close by was a little greenhouse. You know I always have to look inside of greenhouses. Well, over the fence from the greenhouse was a bee-keeper. The minute I got my eye on his premises I thought I had found a little paradise, if I may be excused the expression. The friend who kept the bees loved strawberries and raspberries and garden-stuff. The garden was carpeted with white sand, without a trace of a weed; and the neat regular order of every thing, even if it was in December, quite captivated my fancy. I found the owner in a poultry-house, and there was an incubator. The different kinds of fowls were divided off into such tasty little apartments that I decided at once we had come across an original genius. I began collecting facts, and storing up information for the readers of GLEANINGS, about as rapidly as I did that summer evening when I went to see friend White's carp-pond. The arrangements for the nests, the arrangements for the feed, the arrangements for rapid work, etc., were all taken in at a glance. He asked me to look at his bees. They were not out in the yard inside of the hives that were so neatly and tastily placed on the same carpet of white sand, for our friend Wm. Harmer has his hives so made that the inside parts only may be lifted out and stored in the cellar. I wanted to take a look at the bees in the cellar; but before I got down cellar my eyes fastened on some little sections of honey, just such as I tried to make more than ten years ago. I did not go down cellar just then, but "went" for the little sections.

"Look here, old friend, you are indeed a genius if you have gone and worked out this problem of five-cent packages of comb honey."

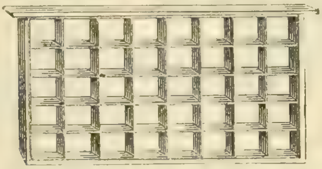
"Well, Mr. Root, I have spent some time and pains on it, and I believe I have brought it practically to perfection too."

"Why, have you really put these on the market, and made a business of it?"

"Well, I have sold several thousand."

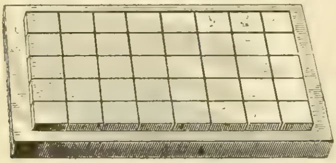
You may be sure I was all eyes and ears;

and I stayed so long in looking at friend H.'s bees in the cellar (the cellar was just as handsome and cosy and nice-looking as his garden was; but he could not help having things nice with white sand everywhere to cover up every thing unsightly), that brother Clark began to urge that I would not catch that train; and, besides, I had to see my sister again, and get my dinner. Friend H. and I got to be friends very fast, you may be sure. He showed me his machine for making the little sections, and told me how it was done. The cuts below will help me to make it plain to you.



AN L. FRAME FILLED WITH 2-OZ. SECTIONS.

When I made my little sections years ago, I supposed, as a matter of course, the cheapest way to make them would be by folding them up as we make one-piece sections nowadays; but friend H. has got away ahead of that. In the first place, he takes a ⅞ board, just long enough to slip inside of an L. frame. Then with a jack-plane, set coarse, he scoops off the shavings. The shavings, of course, roll up as anybody knows they would; but he tumbles them into a pail of water; and when they get well soaked they are straightened out, piled up and dried. This gives thin strips of veneer, and cheaper than you can imagine. He then fixes a board as in the cut below.



FORM FOR MAKING 2-OZ. SECTIONS.

The L. frame is slipped over this board. I want to say, first, that these little blocks are made by gluing a ⅜ board on top of a ⅞ board, as you see. Now, with a circular saw, cut grooves clear through the thin board until the saw just strikes the thick one. These grooves are of such a width that *three* of the afore-mentioned strips of veneer will drop into each groove, the strips running lengthwise of the frame. When this is done, three short pieces of veneer are dropped into the grooves crosswise. But to make these bits of wood stay in place when the frame is pulled up, a little glue is put into each corner, with a camel's-hair brush. You want to be careful, so the glue will not run in too far, and stick to the form. Before you put in the glue, however, drop some little squares of foundation into each little sections. The glue should just catch each corner of the foundation. When the whole thing is dry, lift it off and hang it in the hive. When the little sections are full and sealed over, take frame and all to the grocer; slip off the outside, and show him that he can separate the squares into long strips. With a sharp knife he can now cut them up into little cakes as wanted. If a customer wants two, four, six, or eight, let him have them all in a slice, to save handling so many loose pieces.

Well, I got as many ideas as my head could well contain, for the time being, and got around to my sister's just in time to have a nice dinner of fried oysters. She presided, while I ate and did what talking I could. I came pretty near missing the train, as I told you on page 951, Dec. 15th issue. When the train was well under way, I was so busy thinking of what I had gleaned for GLEANINGS, that I did not notice the individual who came in a little time after, and sat down by my side. I noticed he had an oblong package in his hands; and when he addressed me familiarly I looked him full in the face, and could not then quite remember where I had seen him. I hope you will have charity for me when I tell you it was my new-found friend of just about an hour before. He had taken off his working suit, put on his Sunday clothes, and this, with the fact that I did not dream of seeing him there in that car, made me slow to comprehend. He laughingly explained that he felt something as I did—so loth to have our conversation broken off that he decided to take a trip of ten miles and back for the sake of having a little longer talk with the editor of GLEANINGS. It was very kind of him, and I shall always remember it. The bundle under his arm was the form and frame I have illustrated above, and he gave me a lot of the veneers made with a jack-plane, to carry home. Below is a further explanation which he kindly furnished:

WHY I WAS INDUCED TO EXPERIMENT IN THEIR CONSTRUCTION.

Getting small sections filled, never troubled me; for I knew that bees would fill spaces with comb honey that are a little more than a quarter of an inch, so that, with a good honey-flow, I was not afraid but that they would fill a two-inch space. I would say just here, that I have had sections well filled, only three-fourths of an inch square, so that, in this particular, I was all right; and I have proved to my satisfaction, and, I think, to the satisfaction of the few bee-keepers who have called on me, that I have developed a practical system for making small sections out of shavings from a common hand-plane, and will suit any size of sections for less than 1 lb. of honey, with the proper mold or form for adjusting them.

The reasons why I wanted them are, first, because I have seen comb honey cut in pieces, making it leak in every instance, often being a nuisance, daubing every thing, causing considerable trouble, and making it difficult to give a customer, perhaps a boy or small child, a few cents' worth of comb honey; for every one has not 20 cents to spare to buy a whole section; and if they had, they do not always want so much. I think there are very few grocerymen who would cut a comb to suit such customers; and there are thousands of children around us that do not know the taste of comb honey on this account. I also thought that well-to-do people would buy them for the purpose of putting one on each plate instead of serving or cutting into a large comb. These reasons have all been verified, for I have found such customers delighted in every instance. I have not had the opportunity of trying them at fairs, but I should think they would be just the thing, and would as readily bring 5 cents for a 2-oz. section as 4 oz. would on a piece of paper. That is what I sell them for, which is at the rate of 40 cents per lb., so that, in making these sections in the winter, you have profitable employment.

It was about four years ago that the shaving idea struck me; and now I come to think of it, I wonder that something else did not strike, and that I was not tumbled out of the house along with shavings, water-pans, mucilage, forming-blocks, frames, tack-boxes, baskets, and glue-pot; but I kept things together as well as possible, and was building a house apiary for myself in which I did all my work after that winter. I was the eldest of the three, my sister keeping house for two brothers. I have the best brothers and sisters in the world (eight all told). My brother here is a carpenter; but then, he could not make shavings for me that winter. He did not know any thing about it. Nobody knew any thing about it but myself; nobody's advice was of any use; but, lo and behold! my knowledge did not seem to increase any, and it was not until the next winter that they began to assume a practical form, or that I struck a practical system of forming them; and now, after three seasons more practice and improving, I can put hundreds together, and comb foundation in them in a day, ready for the honey-flow in summer. The size I have been making you will find by dividing a Langstroth brood-frame by 10 one way and 4 the other. The shavings for this size are ⅞ of an inch wide and $\frac{1}{36}$ of an inch thick. I find this size, when filled, to weigh 2 oz. I have just weighed 15 separately, which are on the work-bench, ready for market, and were not selected for uniformity of weight, and they each one just balanced the scales at 2 oz. I will not say any more now on the subject, excepting that, if it has interested any one, he may thank our worthy editor, Mr. A. I. Root, who called on me a few weeks ago and gave me encouragement in my little enterprises. When he saw the small sections he seemed much pleased, and said, "Why don't you write?" I said, "I can't write;" and I make this statement as an apology for the rambling lines above. Mr. Root's call was a surprise, I can assure you, and has caused a bright spot in my memory whenever I think of the few pleasant minutes in his company. I very much regret that his time in Manistee was so short. W. HARMER.

Manistee, Mich., Jan. 10, 1888.

The following we extract from a previous private letter:

The success I have had with them here in this very poor comb-honey locality shows that they are practical, and more especially so when we reduce the frame to half the depth, and this would do away with most of the cutting-apart operation, and which I think can be done away with altogether.

It seems to me that there is a great deal too much wood in all sections, and that these shaving sections will some day take their place, especially for local markets.

I wish I had known you were coming. I wanted to show you my glass hive and many other things. I had not been in such a muddle for days, as I had been working at my new poultry-house.

Manistee, Mich., Dec. 12, 1887. W. HARMER.

Friend H. has, I believe, introduced these little cakes for sale on the cars. He said they were filled as fast as the honey is brought in from the fields, and he has also fed back extracted honey to get the bees to finish them up. The latter are not as nice; and if honey is used that has been candied once it will candy again, even after the cells are sealed up. If you wish to make further inquiries in regard to the matter, send them to me, and friend H. will answer through GLEANINGS.

Friend H. himself will furnish forms, veneer, and every thing necessary for these five-cent packages. As the idea is his own, we think it no more than fair that he should be permitted to furnish them as supplies; that is, where you prefer to buy them rather than to make them yourself.

HONEY STATISTICS

FROM ALL PARTS OF THE UNITED STATES.

WE herewith present our readers with the first installment of something in the way of statistics, gathered from every portion of the United States. We are aware there are some defects in the plan which we have carried out. It is impossible at this time of year, in Northern localities, to make accurate statements; but sufficiently accurate, we hope, for the present. What we aimed to arrive at for now were the present *prospects*. We have located our honey statisticians, as nearly as may be, in the four corners and the center of each important honey-producing State. Those States which are not so conspicuous in the apicultural world have only two statisticians, and these are in the localities where the largest amount of honey is produced. Instead of making a general summary of the whole, we thought best to insert the data just as they came from each man, with his name and locality. First the State is given; then the names of the contributors with the respective postoffices. The next indicates the date at which the statements were rendered. To indicate locality, the usual abbreviations are used—W., E., N., S., for west, east, north, south, and N. E. for north-east, etc. The letter C. indicates the word "central;" and E. C. "east central," etc. The letters designate the answers as printed in fine print below, and correspond to the letters in the following questions:

(*a*) *What proportion of the bees do you estimate have wintered up to date in your section of the State?*

(*b*) *What are the present prospects for a honey crop the coming season?*

(*c*) *If you live South, state whether new honey is coming in, and the amount of the flow.*

ALABAMA.

W. P. W. Duke, Nettleborough. S. W. 3-20.

a. At least two-thirds are in fine condition; b. promising; c. new honey has just commenced coming in.

J. M. Jenkins, Wetumpka. C. 3-20.

a. 90 per cent; b. good; c. new honey coming in for 10 days past. Flow is moderate, not much in excess of quantity used in brood-rearing, etc.

ARIZONA.

J. L. Gregg, Tempe. C. 3-18.

a. 95 per cent; b. magnificent; c. yes. I could to-day take 50 gallons from 100 hives.

CALIFORNIA.

Wm. Muth-Rasmussen, Independence. E. 3-21.

a. Probably 100 per cent; b. very good; c. bees are working on willow.

COLORADO.

Mark W. Moe, Denver. N. 3-22.

a. I think fully nine-tenths, if not 95-100, have wintered well. I have not had time to hunt around much; b. good.

CONNECTICUT.

Daniel H. Johnson, Danielsville. E. 3-20.

a. I think nine-tenths; b. can't say at this date.

L. C. Root, Stamford. S. W. 3 19.

The terrible storm which has just visited us has proven very disastrous to bees in S. W. Conn., which must, of necessity, greatly reduce the honey crop.

FLORIDA.

John Y. Detwiler, New Smyrna. E. C. 3-21.

a. About 95 per cent; b. most excellent; c. yes--amply sufficient for brood-rearing. I returned from Lake Worth yesterday, latitude 26 degrees 44 minutes north, visited all apiaries accessible from the river. Bees are in excellent condition at all points. Swarming in some localities 80 miles south. Bees in this locality are further advanced at this season than for two years previous.

A. B. Dawson, Narrows. E. C. 3-22.

a. All—no loss; b. good, so far as we can judge; c. new honey is coming in; flow normal.

ILLINOIS.

Mrs. L. Harrison, Peoria. C. 3-20.

a. 90 per cent; b. fair.

Dadant & Son, Hamilton. W. C. 3-16.

a. No loss of bees to speak of, except by starvation. Perhaps there is one-fifth of loss, if we include the careless apiarists' bees. Careful apiarists have lost but few; b. prospect of white-clover honey is rather slim, as plenty of clover was killed by drought in 1887.

C. C. Miller, Marengo. N. 3-15.

a. 90 per cent; b. fair.

Frank Howard, Fairfield. S. 3-21.

a. Seventy-five per cent, all wintered on summer stands; b. too early; can't tell; c. pollen, and little honey from maple.

INDIANA.

J. A. Burton, Mitchell. S. C. 3-22.

a. Ninety per cent; b. white clover is all dead; further, I can't say.

I. R. Good, Nappanee. N. 3-15.

a. About two-thirds of the bees have wintered; b. not good; white clover is badly winter-killed.

INDIAN TERRITORY.

G. C. Stokely, Arnoldville. S. 3-19.

a. Too late to make up estimate; b. good; c. none.

IOWA.

J. M. Shuck, Des Moines. C. 3-16.

a. About 25 per cent out of doors, and about 95 per cent in cellars; b. good.

Oliver Foster, Mt. Vernon. E. 3-16.

a. Seventy per cent; b. clover seems scarce.

Z. T. Hawk, Audubon. W. 3-17.

a. Probably 85 per cent; b. too early to predict. Bees are all in winter quarters yet.

J. W. Bittenbender, Knoxville. S. E. 3-17.

a. Loss is 60 per cent out of doors and 5 per cent in; b. fair; c. no honey or pollen.

Eugene Secor, Forest City. N. 3-15.

a. This question can not be answered in this latitude as early as April 1. All colonies are or should be in cellar; and without a complete overhauling (impossible) no one can tell what will be the spring "round up;" b. same is true of this question.

KANSAS.

J. B. Kline, Topeka. E. C. 3-25.

a. The loss in wintering in 1887 and '8 will be a very small percentage; b. our season is opening very early, and looks very favorable for a good honey crop; c. no new honey to speak of, although bees are very busy, and will soon start pollen and honey gathering, as the early flow will soon develop.

B. F. Uhl, Boling. E. 3-20.

a. Eighty per cent; b. good; c. no new honey.

J. E. Stanley, Wichita. S. C. 3-15.

a. From 90 to 95 per cent, all on summer stands; b. good; c. a very little.

KENTUCKY.

J. P. Moore, Morgan. N. 3-17.

a. Bees have wintered well so far as I have been able to ascertain—95 per cent, perhaps; b. the season is not far enough advanced to give an intelligent answer, but we expect a fair season; c. no honey yet.

John S. Reese, Winchester. C. 3-20.

a. About 95 per cent of bees that went into winter quarters are O. K. now; b. prospects good as ever, at this season, for crop; c. honey and pollen in very small quantities, from water-maple.

LOUISIANA.

P. L. Viallon, Bayou Goula. S. W. 3-16.

a. Prospects are fine; b. so far the flow has been sufficient only for brood-rearing—due, I have no doubt, to unusual cold spells lately.

J. W. K. Shaw, Loreauville. S. C. 3-17.

a. All, if not dead from starvation or worms. The past summer and fall was very dry; honey crop short; many colonies starved in the winter; winter cold and wet; rain daily; b. good. China is nearly in bloom, white clover very promising; c. little. We have not noticed, so far, any honey, although live oak, willow, and other trees are in full bloom.

MAINE.

C. W. Costello, Waterboro. S. W. 3-20.

a. Seven-eighths; b. good.

John Reynolds, Clinton. S. W. 3-20.

a. About 95 per cent, in 6 apiaries; b. good as usual, perhaps.

MARYLAND.

S. Valentine, Hagerstown. N. W. 3-15.

a. Bees have wintered well so far. I suppose 90 to 95 per cent are still living; b. the prospect is good. Bees have not been carying any pollen yet; too cold.

MASSACHUSETTS.

J. E. Pond, No. Attleboro. S. E. 3-15.

a. Nearly if not quite two-thirds; b. it is early yet to state with any degree of accuracy; but judging from precedents, shown by the appearance, the prospect of a honey crop during the coming season is good.

E. W. Lund, Baldwinville. N. C. 3-19.

a. Would say one-half; b. very good.

A. A. Sanborn, Westfield. S. W. 3-22.

a. Nine-tenths; b. fair.

MICHIGAN.

George E. Hilton, Fremont. W. 3-15.

a. About 90 per cent; b. good.

A. J. Cook, Lansing. S. C. 3-13.

a. I think 90 per cent have wintered thus far. Bees are now generally kept in Michigan by those who read and study, and so winter with less loss; b. we can only guess at prospects for next year. Poor last; good next.

James Heddon, Dowagiac. S. W. 3-14.

a. One-half of bees are dead; b. poor prospect for 1888 crop.

R. L. Taylor, Lapeer. W. 3-15.

a. Eighty per cent; b. below the average.

H. D. Cutting, Clinton. S. W. 3-17.

a. About 80 per cent; b. prospects are always good at this time. It is the dry seasons that fail. No pollen as yet.

T. F. Bingham, Abronia. S. W. 3-15.

a. Nearly all, 90 per cent—unusually well; off year for basswood; and clover we are not sure was not injured by last season's drought. We expect an average honey-yield. Open freezing weather now may injure clover some.

MINNESOTA.

Bright Bros., Mazeppa. E. 3-19.

a. About 95 per cent; b. good. The loss on bees up to date is very light; but if you were to ask this question six weeks later the answer would be altogether different.

W. Urie, Minneapolis. E. C. 3-20.

a. As far as my information extends, the bees are in good condition; not many losses up to date; prospects are good for a honey crop. Clover is yet covered two feet deep with snow, which keeps the clover all right. No bees taken out of winter quarters so far as heard from.

MISSISSIPPI.

Oscar F. Bledsoe, Grenada. N. 3-17.

a. About 90 per cent; b. no indication that it will not be as good as usual; c. a small quantity from peach, plum, and other early bloom.

MISSOURI.

Jno. Nebel & Son, High Hill. E. C. 3-20.

a. Nearly one-half; b. for a clover crop, good, though bees are very weak to build up in time to be ready for the flow.

S. E. Miller, Bluffton. C. 3-19.

a. About 96 per cent, to the best of my knowledge; b. fair; c. bees are gathering pollen, and perhaps a little honey, from soft maple, March 17. The above refers only to our own apiary; will try to send summarized statement of reports from various important apiaries in my section next time.

E. M. Hayhurst, Kansas City. W. 3-17.

a. Two-thirds; b. one-half per colony; c. no new honey yet.

NEBRASKA.

Jerome Wiltse, Fall City. S. E. 3-17.

a. About 80 per cent; b. the prospects are favorable; c. nothing is yet in bloom.

J. M. Young, Rock Bluffs. E. 3-20.

a. Not far from 65 per cent, caused by starvation; b. very favorable; c. no honey to come in until apple-blossom.

NEVADA.

E. A. Moore, Reno. C. 3-19.

a. Over two-thirds; b. good; c. very little at present.

NEW HAMPSHIRE.

J. A. Bachelder, Keene. S. 3-20.

a. Too early to estimate; been very cold; no chance to examine bees; b. can not tell; snow is three feet deep.

NEW JERSEY.

Watson Allen, Bernardsville. N. C. 3-20.

a. From 85 to 88 per cent; b. fair for white clover, which is the main crop in summer.

NEW MEXICO.

Wm. H. Newcomb, Silver City. S. W. 3-19.

a. I do not know of any bees in this locality; think there are some at Las Cruces and La Mesilla, about 100 miles distant, in Dona Ana County. I should think bees might do well here if handled intelligently.

NEW YORK.

P. H. Elwood, Starkville. C. 3-17.

a. Bees will be out of cellars just about in time for next report; I expect average wintering; b. ground is well covered with snow, and clover ought to winter well. Full blow of basswood last year, and can hardly expect as much this year; expect average crop.

F. Boomhower, Gallupville. E. C. 3-20.

a. About 90 per cent; b. good; c. no honey yet.

G. M. Doolittle, Borodino. C. 3-15.

a. About nineteen-twentieths; b. good for clover; off year for basswood; c. cold, with lots of snow and prospects for a month of winter yet.

E. R. Newcomb, Pleasant Valley. S. E. 3-15.
a. Four-fifths; b. fair.

NORTH CAROLINA.

H. M. Isaac, Catfish. W. 3-19.
a. About 95 per cent; b. not very good; c. none yet.

Abbott L. Swinson, Goldsboro. E. 3-19.
a. Fully 75 per cent; b. I should judge it excellent; c. no honey, but pollen plentiful since January.

OHIO.

A. B. Mason, Auburndale. N. W. 3-16.
a. Nine-tenths; b. good.

Dr. G. L. Tinker, New Philadelphia. N. E. 3-20.
a. Nine out of ten colonies have survived in good order. There has been much loss from starvation; b. good, except from white clover; c. honey in limited amount, and pollen came in to-day from the soft maple.

Dr. H. Besse, Delaware. C. 3-23.
a. About 80 per cent, I should think, from present indications; b. It seems to be good.

OREGON.

Geo. Ebal, Baker City. W. 3-21.
a. About 80 per cent; b. can't tell yet

J. D. Rusk, Milwaukee. N. 3-20.
a. About 80 per cent have wintered; b. prospects for a honey crop are good. c. new honey, yes; flow light.

PENNSYLVANIA.

M. H. Tweed, Allegheny City. S. W. 3-19.
a. From eighth-tenths to nine-tenths; b. nothing unfavorable as yet.

Watts Bros., Murray. C. 3-20.
a. About 90 per cent; b. fair.

Geo. A. Wright, Glenwood. N. E. 3-17.
a. About 98 per cent; b. never better.

S. W. Morrison, Oxford. S. E. 3-16.
a. One-half. Bees have been lost, and more will be from starvation. Nine-tenths of the bees in this State are in box hives, and are utterly neglected, therefore lost.

C. W. King, Emlenton. N. W. 3-23.
a. About 95 per cent are all right; b. I hope it will be good.

SOUTH CAROLINA.

W. J. Ellison, Stateburg. C. 3-19.
a. About 95 per cent; b. very good; c. all consumed in extensive brood-rearing; no surplus.

Harvey T. Cook, Greenville. N. W. 3-15.
a. Fully 100 per cent; for those who use the old hive, and rob close, lost 33⅓ per cent or more; b. good—most blossoms kept back by cold; c. not now; some was brought in earlier.

TENNESSEE.

W. H. Greer, Paris. N. W. 3-17.
a. About 90 per cent; b. good; c. small quantities from soft maple.

J. J. Lawson, Lookout Mt. C. 3-20.
a. About 97 out of 100; b. good to very good; c. honey and pollen enough for brood-rearing only. Honey, though scarce in the valley, was unusually good on the mountains in 1887.

G. B. Cartmell, Jackson. W. 3-20.
a. At least 90 per cent; b. good, at least better than for two years past; c. no new honey coming in as yet.

C. C. Vaughn. Columbia. C. 3-15.
a. Eight-tenths; b. good; c. no honey yet.

TEXAS.

B. F. Carroll, Dresden. N. W. 3-20.
a. About 75 per cent; b. prospects very good; an abundance of rain has fallen since Aug., 1887; the mint (monarda punctata) is up nicely. Bees are gathering honey rapidly from Judas-tree blooms and fruit-blossoms.

J. P. Caldwell, San Marcos. S. W. 3-17.
a. About ninety-two per cent; b. very flattering; c. we are having a light honey-flow.

L. Stachelhausen, Selma. W. 3-17.
a. About 98 per cent have wintered; b. prospect for a honey crop is good; c. some honey is coming in—less than is needed for breeding.

J. E. Lay, Hallettsville. S. W. 3-19.
a. About nine-tenths; b. good; c. new honey, but little.

UTAH.

William Harrison, Provo City. C. 3-20.
a. Seven-eighths; b. prospects good; c. no honey is coming in yet.

John H. Snider, Salt Lake City. S. 3-17.
a. About nine-tenths have wintered; b. the prospects are very good at present.

VERMONT.

A. E. Manum, Bristol. W. 3-19.
a. I think 95 per cent have wintered; b. favorable, owing to the heavy body of snow we have had all winter; c. our bees are snowed in yet.

Howard J. Smith, Richford. N. 3-21.
a. About one-half have wintered; b. the prospects are good for a honey crop the coming summer.

VIRGINIA.

James E. Duvall, Bellefair Mills. E. 3-19.
a. About 95 per cent, as nearly as I can learn; b. fair; c. no honey coming in yet.

J. C. Frisbee, Suffolk. S. E. 3-17.
a. About nine-tenths; b. fair; c. some new honey—light flow. The excessive cold snap of the past two weeks has entirely stopped the work of the bees.

H. W. Bass, Front Royal. N. 3-21.
a. About 93 per cent alive, and generally stong; b. we think good, but too early to tell; c. no honey yet; a little pollen.

WEST VIRGINIA.

M. A. Kelley, Milton. S. W. 3-15.
a. About 90 per cent; b. medium.

Will Thatcher, Martinsburg. E. 3-16.
a. About 90 per cent; b. good; c. too previous. The latter part of October, 1887, I placed 41 colonies in Simp. hives, single-walled, no contraction at sides, with 5 or 6 inches wheat chaff over frames, and every one has wintered well up to date.

WISCONSIN.

George Grimm, Jefferson. S. E. 3-16.
a. Probably nine-tenths; b. too early to tell.

Joshua Bull, Seymour. E. 3-21.
a. Ninety-five per cent of the bees in this locality are, I think, safely through thus far; b. clover roots have been well protected from the severity of the winter, having been deeply covered with snow. If the weather is favorable in June and July, we may reasonably hope for a good crop of honey the coming season; c. no new honey coming in yet

E. France, Platteville. N. W. 3-21.
a. Half; b. am in hopes of half a crop.

E. E. Tongue, Hillsborough. S. W. 3-18.
a. I have been around and made inquiries about bees, just to satisfy myself, not thinking that any one would care to know the same. So far as I have been able to learn from about 3000 colonies, none are dead, and all seem in good order, and promise to get through all right.

Frank McNay, Mauston. C. 3-21.
a. About 95 per cent; b. good as usual.

S. I. Freeborn, Ithaca. S. W. 3-20.
a. Of my own and others, aggregating 1000 colonies, I think 95 per cent will be alive April 1; b. not extra good; two years of drought has nearly wiped out the white clover.

J. C. Sayles, Hartford. S. E. 3-20.
a. I would, as a mere estimate, say 90 per cent; b. I consider it favorable.

We have not, at this writing, March 30, heard from all the honey-statisticians, as reference to three of the leading honey-producing States will show. To all of these, there should be at least five reporters, whereas there are only two or three. In the way of a summary for the whole of the U. S., the answers are as follows: a, exactly $84\frac{7}{11}$ per cent; b, favorable; c, honey has been coming in for three or four weeks in the extreme South; in those a little further north, honey is just coming in.

OUR BEES.

Will you walk into the apiary?
  Said the apiarist to his friend;
'Tis a wondrous little workshop,
  Where love and friendship blend.

I've a noble set of workers
  As ever you did spy,
At home or abroad, or
  When coming through the rye.

They are up and out at sunrise,
  To search the flowers over;
Perchance may be a spider plant,
  Or bunch of alsike clover.

They roam at large o'er hill and dale,
  And up and down the meadow,
And no complaint is ever made
  Except by some old fellow

Who fears his rights may be "abridged,'
  Or some such hallucination,
Yet wants a law to keep bees out,
  Or off his whole plantation.

I wonder why they toil so hard
  From day to day for one another;
I ne'er could tell, unless it be
  The love they have for mother.

Their papas dear are "lost," you know;
  Their brothers seem to idle round;
They have no beaux to ask to tea,
  And hence they wear the same old gown.

These hapless maidens, busy workers,
  Are the menials of the hive;
While queen and drones are on the wing,
  They are on the drive.

And if the nectar can be had,
  The weather fair and warm,
They sometimes get upon a "strike"
  And then begin to swarm.

But why this labor, why the zeal?
  It brings to them no money;
All they get from year to year
  Is only stores of honey.

Now, this lesson we may learn:
  "With food and raiment be content;'
But if through labor more we earn,
  Receive it meekly, for 'tis lent.

"Seek first the kingdom," then the rest
  Will be added to your store;
Faith, repentance, godly walk,
  Heaven at last you want no more.

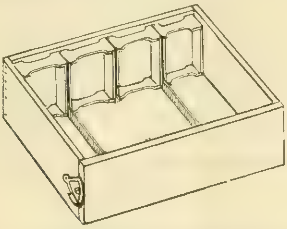
Winona, Miss. W

T. P. ANDREWS' SECTION-CASE.

A SUGGESTION IN REGARD TO MAKING IT.

FOR the past year or two I have thought that I was about done raising comb honey; but human plans, especially bee-keepers', are mutable, and I find myself, at this date, decided to run the greater part of my 250 colonies to comb honey the coming season. As I had discarded my former method of handling sections as not being up in line with the modern improvements, I have been looking around the past winter in search of the best surplus arrangement for comb honey. I had decided that my section-case must hold sections 4¼ x 4¼, 7 to the foot; that the sections must have open sides; that it must admit of the use of separators; that it must have no unnecessary bee-spaces between it and the brood-frames; that it must be so arranged that the sections and separators can be easily put in and removed; that it must protect the outside of sections from propolis; and, lastly, it must not be expensive.

By the accompanying sketch and description you will see where I stand at present in the matter of a section-case.



T. P. ANDREWS' PROPOSED SECTION-CASE.

The case is about 17 x 12 x 4¼ inches, inside measure. I make it of ⅞ lumber. The ends are nailed on to the back side of the case. The front, or movable side, is as long as the outside length of the case, and is held in place and drawn up tight against the sections by a pair of Vandeusen's hive-clamps, as shown in cut. This arrangement holds the sections firmly in place without T tins or other device.

The separators are kept up in place by two narrow strips of tin. If used without a bee-space between it and the slatted honey-board, the openings between slats must be made to correspond in size and shape with those between the sections. If it is decided that a bee-space is desirable, the case can be made deeper, leaving the bee-space above the sections, and fix the honey-board with a bee-space on the upper side also.

To fill this case with sections and separators easily, set it on a flat smooth board, with the open side toward you. Raise the front of the board on which the case sits, an inch or more, so the separators will not fall over when placed against a row of sections; spread the loose ends of the end boards a little further apart, and you are ready to put in your first row of sections. Then put in the two narrow tin strips, and afterward the first separator. Rows of sections and separators are then put in till the case is filled. The movable side is then put in place, the clasps are pressed down over the screws that project from the center of each end of the movable side, and the case is ready for the hive.

Now, if any one who reads this has any suggestions or criticisms to offer, with a view to improving this case or of giving us a better one, let him or her speak quick, for I want to adopt the best arrangement attainable at our present state of advancement, and I want to decide soon.

Farina, Ill., Mar. 6, 1888. T. P. ANDREWS.

Very good, friend A. As we have not, of course, had a chance to try your case, we can speak only from what experience we have had with other section-cases similarly constructed. In the first place, it seems to us that it was hardly wise to dispense with all the usual supports for holding the central rows of sections. No doubt the Vandeusen clamps will, by compression, hold the sections when they are first put into the case. But then there would be danger, from the shrinkage of the lumber in the sections, of their dropping down so as to close the bee-space entirely between the sections and the honey-board. We have found by long experience, that sections will shrink in width more or less. The lumber may be ever so thoroughly kiln-dried; but when cut up into narrow strips we find that it will shrink a little more. Now, while you can cut sections just of a required width, yet in a few months' time you will find them a little smaller and a little narrower, although but a very small trifle.

I presume you know, also, that your arrangement comes pretty close to Oliver Foster's; that is, if you use it with a honey-board having spaces to correspond with the spaces in the sections—the honey-board, of course, coming in contact with the sections. Friend Foster, however, wedges the sections endwise as well as sidewise. You speak of using the crate with separators or without separators. I suppose you have taken into account the thickness of the tin. Perhaps the Vandeusen clasp, however, has draw enough to take this up. But there is another trouble that you and others seem to overlook, with such arrangements. Basswood sections season unequally; and your movable side will generally strike two rows of sections, leaving the other two more or less loose. Sections *can not* be made so that a row of seven will measure exactly alike.

THE TAILOR BEE.

HOW TO RECOGNIZE HIM.

THE cells sent by Fred A. Hunett, Casco, Mich., are, as he supposes, the larvæ of the tailor bee. He is also right in supposing the mature bee will come forth next spring. The tailor bee is about as large as our common honey-bee, but can be told by the heavy brush of yellow hairs on the under side of the abdomen. These are their pollen-gathering hairs which they use to collect the pollen. All bees collect pollen for food. Some feed this directly to their young, or, rather, place it where the young can feed on it. Others, like our hive-bees, bumble-bees, etc., digest it and secrete food for their young. The nests of the tailor bee, made as they are of regular oval or circular pieces of leaves which the bees cut with their scissor-like jaws, are curious and interesting.

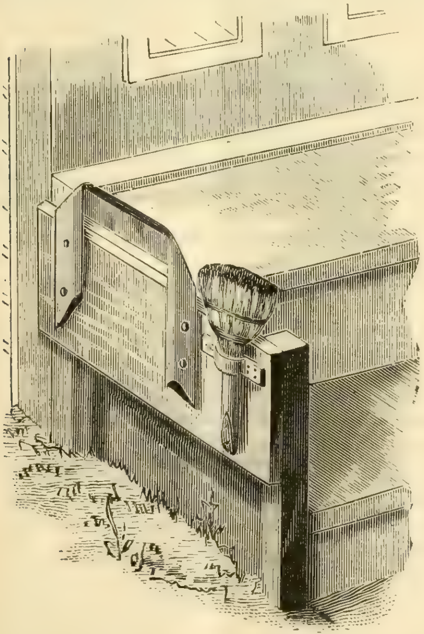
A. J. COOK.

Agricultural College, Mich., March 21, 1888.

A FOOT-SCRAPER AND MUD-BRUSH.

SOMETHING TO PREVENT THESE MEN FROM GOING THROUGH THE HOUSE WITH MUDDY FEET.

THE accompanying engraving shows a handy foot-scraper and mud-brush, devised by one of our bee-keepers. Mr. E. P. Churchill. It would be a great saving to carpets, as well as something conducive to the good nature of the housewife. It is a little strange, but it is nevertheless a fact, I believe, that in a great many homes the men and boys are never overscrupulous about cleaning their feet before entering the house. But they have a shadow of excuse; and that is, that it is often not convenient; and as the sod near the doorway is soft and muddy, nothing will be gained by scraping the feet on spongy soil, and so the male members track through the house, much to the discomfort of the mother and wife. The device below figured is quite ingenious; and, as our friend Churchill says, it can be made of material found around almost every home. The engraving below is almost self-explaining.



CHURCHILL'S FOOT-SCRAPER AND MUD-BRUSH.

Friend Root:—Knowing you are in for utilizing all things, and making little things count, I send you my idea of using two articles that have been a waste so many years. I have studied much on it, and I can say I am pleased every time I come to the door. A number have caught the fever and are using old brooms and scythes as foot-cleaners. There are other uses for the broom. It can be fastened up in the stable, to clean shovels on. I have one, and it fills a big gap as it were. Cut the handle off 15 to 18 inches from the brush, and round out a piece of four-inch joist a little for the handle next to the brush to rest on; then nail a strip of tin or leather over it, and one near the lower end, the end to be chamfered off to fit the boarding. The brush should set a little quartering from the boarding, so as we stand to draw the shovel across it we shall be clear of the wall of the stable; and it's only fun to clean a tool on it. The end of the broom should be about 3½ feet high, or according to the person using it. For cleaning roots in the cellar, fasten the handle of a broom (after being cut off the proper length) in the corner of a box. With a box large enough to stand firmly, one can clean turnips and other roots quickly and much better than with a knife, and no waste of trimmings either. I think old brooms are worth as much for these uses as when new to sweep, so the usual waste is saved, and we are pleased besides. I presume in time we may use them to clean other things, such as extracting-knives. I love to make improvements in all little things.

Hallowell, Me. E. P. CHURCHILL.

We are sure it pays in dollars and cents to have a foot-cleaner, something as represented below. Your wife will tell you that the mud and dust grind into the carpet and wear it out prematurely, and carpets cost money. With little expense, such as friend Churchill suggests, you can save a great deal in floor wear. The old scythe will doubtless have to be bent in the shape illustrated, and the holes bored at your nearest blacksmith-shop. For the broom, instead of using a heavy piece of tin, while about it I would have the blacksmith make a lug out of ⅜ iron, bent in the shape shown in the engraving. Although friend Churchill does not say so, I should judge that the broom has been sliced off to make an even brush. At our house we have not only foot-scrapers such as we keep on our five-cent counter, but a matting whose upper surface is thickly set with bristles. After the greater portion of the mud has been scraped off on the foot-scrapers, the shoe bottoms can be wiped clean. In time these mats will become dusty and clotted somewhat with dry mud. They can then be taken out and whipped with a stick, after which they will be nearly as clean as ever. These mats cost 50 cents each, and answer the purpose perfectly. Friend Churchill's brush, however, has the advantage of cheapness as well as the fact that it is adapted to cleaning vegetables, etc.

STOCKING THE FIELD.

HONEY FROM THE ASTER, BLUE THISTLE, ETC.

EDITOR GLEANINGS:—Mr. Freeborn's letter in your issue for March 1, 1888, throws valuable light upon this subject. The fact that such results can be attained with such large numbers is valuable, as is the fact stated by Mr. France, about his large product, and that it was done in so short a time. Can not Geo. Grimm give us some light upon this subject? We all know that the season is the one potent factor, and that there are times when the secretion of nectar in every good locality seems to be illimitable; and then in such a season as 1887 the best localities fail. In such a season as the past one, what is the relative difference in the average results between large and small apiaries, in like good localities? As bearing upon this, I can say that 90 colonies, spring count, produced a larger average that 15 in an out-apiary 3½ miles distant.

Now, if the light production comes from bad weather and a limited secretion in our flora, extending throughout the whole season, the effect is very different from a condition that prevents the yield of nectar only in certain flowers, while that in others remains normal or large. Take linden and white clover. There are localities where both are very valuable sources of supply. If one utterly fails and the other is very abundant, the average product will be largely reduced; yet it would have no bearing upon the question of stocking, if the stocks have full employment during the clover season. With us the season of 1887 would have been as bad a failure as elsewhere but for the unusually abundant bloom of aster. Orchard and forest bloom and white clover and blue thistle were abundant here, yet none of these gave us any surplus, except blue thistle, which, by the way, gives very nice honey.

Now, if one important source of supply is so abundant, say for but ten days, as to *fully employ* 100 colonies in one locality, that locality, if it has other sources of supply in ordinary seasons, can not be said to be overstocked, even though all other flowers were cut off, though the average product may not be high after providing for winter.

Here in Virginia, where we all winter on summer stands, your question No. 38 is a matter of interest. Bees fly out more or less all winter, and are rarely confined 30 days. The consumption of honey is much greater than in the North, not only because of the activity, but because of earlier brood-rearing. Having kept bees in New York, the fact has been long apparent to me. J. W. PORTER.

Charlottesville, Va., March 8, 1888.

SERMON TO HUSBANDS.

HUSBANDS, BE GOOD TO YOUR WIVES WHILE YOU AND THEY ARE ALIVE.

TWENTY-FOUR years ago I boarded with a young married couple. They were nice-mannered, gentle-spoken young people, in poor circumstances. They had at that time five children, all small, so that the wife had no help worth speaking of. She was an industrious Christian woman, ambitious of her housekeeping, and proud of her children. All through the haying season, with all her household work and other cares, she had to go out every time a load of hay came to the barn, and drive the horse that was hitched to the rope that moved the hay-fork. This she did cheerfully; but there came a day when she, almost blind with sick headache, could not drive the horse steadily, as was her wont, and the fierce yells that came to her from the depths of the hay-mow made her still more nervous, until at last the horse got frightened and kicked himself loose and ran away. The young wife crept back to the hot kitchen, and began cooking supper for the men. That evening, as we went to hunt the cows (it was her regular work to hunt the cows out in the woods every evening, and to milk them after they were driven home) she told me of the trials of her married life. I did not believe her then; I did not believe her for years; but I believe now all that she told me then. She told me of the hundred *little* ways that her husband took to annoy her. One of these was a habit he had of being prompt. He would set a time to start to town, and if, as sometimes happened, she could not get all the little ones ready in time, he did—what do you think? helped her dress them, and told her not to worry, as there was all of life before them? Well, not exactly that; but he drove away and left her—left her when fifteen minutes' help, or a half-hour's patient waiting would have made every thing smooth and pleasant; left her, the wife that he had promised to love and protect as long as they both should live; left her with tears in her eyes and a rage in her heart that was fearful to behold. This was only one of a hundred of his little ways; but, worse than all was his whipping her with a stick. I could believe all the rest that she told me; but this seemed too much. He was a quiet-spoken, intelligent man; he went around and made speeches at farmers' clubs and political meetings, and was so nice and polite to every one. The children grew up, the daughters married, the husband died; and the widow said to me in the midst of her grief, "I can love him now; I loved him before I married him; but from our wedding-day he has been a tyrant to me. I have been no dearer to him than his horses or his lands—something that helped to make him money, and save it for him. I have been his slave, but now I am free; and with his dead body lying there, I love him as I used to love him before I knew him. It seems as if the feeling of aversion had all dropped away, and I see only the bright-eyed lover whom I married thirty years ago;" and these words were from the lips of the woman whom he had chosen from among all others, and whom he had promised to love and protect until death should part them. Young husband, take the hat from off your head and the shoes from off your feet, for the place where you stand is holy ground. MAHALA B. CHADDOCK.

Vermont, Ill.

Mrs. Chaddock, it is a sad and serious story you have been telling us; but I am afraid you are making a mistake when you put the heading "A Sermon to Husbands." I am sure it ought to read, "A sermon to any man or woman who goes through life without the love of God in the heart." There may have been *women* as awfully wicked and cruel and hard-hearted as this husband of whom you speak, but I never knew of any, and I hope there are none. You say this woman was a Christian, but you did not say that her husband was, and I am glad that you did not say so. If this story be true, his record is a dishonor to his sex; and had he made any sort of profession of Christianity it would have been a dishonor to Christ Jesus. Now, while we censure, perhaps it would be well to remember that many of us, without the restraining power of the Christian religion, might be at least somewhat like this man. Your old friend A. I. Root, before he acknowledged Christ, might have done such a wicked thing as to drive away because his poor overworked wife was fifteen minutes late in getting the children ready. In fact, before I became a Christian it would have been just like me to do such a thing; and when vexed and impatient, I might be tempted to *think* of doing such a thing now. I say, *think* of such a thing; but the thought would be but brief and momentary, thank God—in fact, I *dare not* do it. I am afraid to do it, even if I want to do it when vexed and angry. You may ask what I am afraid of. I am afraid of the awful remorse that would follow. There was a time when it did not. I am afraid, too, of the loss of the peace of my mind. I am afraid when I think of asking God's blessing at every meal, or as I go to bed for the night. If I should do such a thing, I should not dare go to him in love and confidence. I am afraid, above all, of the dishonor it would cast on the name that I profess to be following. I am afraid of the pain and anguish that it would bring into the heart of my poor wife. If I *should* be tempted to start off in that way, before I got half a mile, I would whirl around and go back faster than if I saw my house on fire, to try to undo the fearful thing I had contemplated doing. Now, friends, let us not make a mistake and put the depravity of the human race *all* on the shoulders of either man or woman. Let us remember that either sex, without Christ, or, say, a spark of Christianity, to restrain them, might be worse than brutes. And let us also remember that either one, even the worst and most depraved, can be, by this same redeeming love, transformed into saints. Let us hate, loathe, and detest the prince of darkness with all our might, wherever his work be found, whether in mankind or womankind; and then let us turn to Christ Jesus who came into the world to save just such sinners as Mrs. Chaddock has told us about.

OWNERSHIP OF STRAY SWARMS.

FASTENING FOUNDATION TO THE SIDES OF THE SECTION BUT NOT TO THE TOP OR BOTTOM.

I WAS very much surprised at the position taken by the editor of GLEANINGS, at the close of the replies to query No. 10, page 787 of last year. There was nothing said in that query to denote that the employer was a bee-keeper, or that he was in any way interested in bees; nor that he would have accepted the bees had the finder of the swarm presented them to him. I say "presented," for I can not see why the employer should say he had any claim upon them unless, as Mr. Robinson puts it in last GLEANINGS, "it was among his duties to discover and hive bees, or search for swarms." Let us suppose a case: The editor of GLEANINGS writes me he wishes me to go to friend Betsinger's and make a draft of his honey-house, which I have spoken of in GLEANINGS, offering me 25 cents an hour for the time I spend, from the time I leave my home till I return again. On the road to Mr. B.'s I find a twenty-dollar gold piece, and stoop down and pick it up. After duly advertising it in our local papers, no owner is found; whom does it belong to —Mr. Root or myself? I claim that it belongs to myself and should consider Mr. Root very unjust if he took the course toward me he proposes to take on page 787; not only unjust to me, but unjust to himself as well. If it had been a swarm of bees I had found, which took any time of any amount to care for them, then I should be dishonest were I to report full time for all of my absence from home; but the bees would not be his any more than the $20.00 would have been. I think friend Root does not take the right view of what is *real worth* in the man or woman who works for him. What I consider as real worth in hired help is the doing the *very best* they can at the work I set them at; for instance, I hire a man to hoe a field of potatoes for me, giving him so much an hour for so doing. If that man studies into how I want my potatoes hoed, and then works till he gets my mode perfect, after which he strives to see how many he can hoe for me in each hour as it passes, till he reaches perfection both as to speed and work done, then I think I can well afford to increase his wages and put confidence in him, rather than base his worth on his chance findings or any thing else. What he gets outside of the nature of the employment I set him at is his, less the damage he does me by the loss of his time; and it seems to me that, should he not secure to his family the benefits of a $20.00 gold piece picked up he would not be fulfilling the duty he owed to that family.

On page 929 of GLEANINGS for 1887, Dr. Miller, under the head of "Sections Built to one Side," gives us his views as to why bees cause such a state of affairs to exist, and says, "The remedy is not easily found." I think the cause of foundation being curled, so as to be attached to the separators, is just as the doctor says; i. e., the bees lengthen the cells on one side of the foundation and put honey in it before the other side is worked to so great an extent; but with some of us the remedy is not hard to find. Soon after foundation first came around, I made some plaster-Paris casts, fitting them so they would just come up to the middle of the sections, when a section was slipped over them. On this cast melted beeswax was put, painting the cast over with the wax, and at the same time attaching the wax to the sides of the box all around. This, of course, gave only the cell impression on one side of the wax sheet, leaving the other plain and smooth. On this the bees worked well at all times when honey was coming in plentifully; but in times of a slow yield they built out the side having the impression on, and left the other untouched, as the doctor speaks of, so that I often had sections all finished on one side, with nothing but a plain sheet of wax on the other. However, as these sheets of wax were attached to the sections on all sides they always kept their place, never curling or twisting. When I first began to use other foundation to any extent I was often met with the same difficulty of which the doctor speaks. One day I chanced to think of these former experiences with the old casts, and at once fastened the foundation to all sides of the sections. This worked well, only on foundation which was inclined to sag, except that it took too much time. Later on I fastened the foundation only to the sides of the sections, leaving it short at the top and bottom ¼ inch, when I found I had the thing perfect, as in this way the sag was provided for, and no curling could be done, on account of one side being filled before the other.

G. M. DOOLITTLE.

Borodino, N. Y., March 13, 1888.

Now look here, old friend; suppose that *I* "suppose a case," as you put it. Whoever owns fifty hives or more will soon learn that these fifty colonies of bees are a sort of attraction for "strays," as we sometimes call them. These strays in the spring and fall of the year are often bees that swarm out on account of lack of stores. During the swarming season they come and cluster close by an apiary, for some reason I can not explain. Not a season passes but that we have more or less of these strays. They generally cluster on the evergreens surrounding our apiary, sometimes on the hedge across the road; and whoever has charge of our apiary, sooner or later meets these strays and has to be instructed what to do with them. Only one man that I remember of ever raised the question as to whom these bees rightly belonged. A great many times the apiarist declares they did not come from any of our own hives, when he afterward finds out they did.—My estimate of a man's real worth would depend a good deal on how closely he felt disposed to work for me when he had sold me his time. If he were employed to work for the bees, and considered it no more than fair and right that he should look up from his work to see every team that passes the road adjoining the apiary, I should think it detracted from his money value. If, besides that, he should stop a farmer who had potatoes on his wagon, and buy them because he needed some potatoes, he might think it was all right, even though the farmer started from home to bring the potatoes to me in answer to an advertisement of mine. Now, there are some hired men who do that way, and some who don't. I do not often quarrel with either class; but I can well afford to pay the latter kind the best wages—sometimes double what I could pay the former kind. I do not care so much about the profit or loss in these little transactions, as I do for the fact that it indicates his plan of doing business; for even such straws almost always unerringly indicate which way the wind blows. I quite agree with you in regard to the gold piece.—At the Utica Convention a Mr. Dickinson said he had excellent success by fastening the foundation along the top and down one side of the section. In this case the sheet of foundation was squarely cut, so it nearly filled the section. To get it in accurately he has a groove cut with a saw along the top and side of the section. The square foundation is pushed into the grooves, and fastened with melted wax.

* * *

ENSILAGE.

FRIEND TERRY ANSWERS THE OBJECTIONS BROUGHT FORTH BY LANDRETH AND OTHERS.

It may be, that some will inquire what we have to do with ensilage; but as friend Hayhurst puts it in his note below, I think it must be admitted that the question concerns every one who buys milk of our milk-men; therefore we thought best to give it a place:

Ed. Gleanings.—Some time since you published an article favoring "ensilage," by Prof. Cook, if I am not mistaken. At the time I felt a strong desire to write him, asking in regard to the effect of the fermentation on the cattle; but I was prevented by sickness. Ever since I first read on this subject I have had the impression that the "mash" from a silo was quite as bad as that from the brewery. Many of the dairies about this city use the latter stuff—a most abominable practice which should be suppressed by law.

Here is a scrap from Landreth's, which I hope will have the effect of calling out enough discussion for us to arrive at the truth. I am inclined to think the Landreths are correct. I use the mangolds for winter food for my cows, and find them invaluable.

E. M. HAYHURST.

Kansas City, Mo., Feb. 28, 1888.

Below is the paper referred to, cut from Landreth's *Companion for the Garden and Farm:*

ENSILAGE.

What is this about which so much discussion is held? Is it a new system, and is it one worthy of general adoption?

We reply, first, it is not new, but is as old as history, practiced by Cæsar during his invasion of France, and since resumed at intervals by all the European nations. And, second, that it is of high value only in sections of country where, through a moist climate, the making of good dry hay is difficult, or in far Southern sections in which good hay-making grasses do not flourish.

In England, and in countries bordering on the west coast of Europe, where constant moisture prevails, the system has been pursued with very great profit; but in the United States, where we have an almost tropical sun, the farmer for profit rather than show, can do without this process, costly and of questionable utility.

Ensilage is that system of preserving green grass, green fodder of any kind, in chambers where it is compressed and entirely removed from the action of the atmosphere. These chambers may be above or below ground; may, for instance, somewhat resemble an underground ice-house, in which the green material, cut into pieces less than an inch in length, to facilitate compressing, is placed and weighted down with stone or screwed down with jacks.

The green material, if properly compressed, and if air and water be excluded, will keep for months, and turn out somewhat after the character of sauerkraut. Fermentation soon begins, the temperature rising to 150° F., at which point, as the chambers are air-tight, the further progress of fermentation is extinguished, and the mass preserved with traces of alchohol sufficient often to produce noticeable effects upon the bearing of cattle.

The action of ensilage upon milch cows is to stimulate them to a large production of milk—straining the producing powers unnaturally, as becomes evident upon ceasing to feed it—the animals becoming languid and limp, the same resultant effects as in the case of a drinking man deprived of his whisky.

The process is only within the reach of the most wealthy class of farmers; and it is well, as we venture to predict that, in a few years, we shall hear much less of ensilage than we do now. Concentrated food for wintering cattle can be best obtained by the culture of mangolds, carrots, and turnips, as twice as many tons can be grown to the acre as of green fodder, and the roots can be kept in ordinary cellars or in simple pits behind the barn.

We advise ordinary farmers to hesitate before building expensive silos, but they need not hesitate to cut down the ration of corn and feed more roots.

On receipt of the above we forwarded it to friend Terry, with request to answer. I presume our readers are aware that, through the institute work of the past winter, throughout the different States, friend Terry has had opportunities of being perhaps as well or better posted than any other one man in the United States. I think his statements can be received as conclusive in regard to the matter. He says:

Friend Root:—I have found that the ones who talked against ensilage were those who have never tried it, and simply had a theory on the subject. The farmers who have actually tried it are well satisfied, almost to a man. I have yet to find a single man, who has tried it, who is down on it. Now and then one has made some mistake, and got poor feed; but they do not say any thing against the system. Silos are getting to be quite common in this vicinity, and I have met and talked with quite a large number, at the institute, who have them.

Friend Landreth is evidently not posted in regard to the latest improvements in silo building and filling. He says the process is only within the reach of the most wealthy. Years ago, when they were built of heavy masonry, there was some call for that statement; but to-day they are built of wood, cheaply. We have good ones, large enough for an ordinary farmer, costing from $60 to $150 only. They have been built cheaper and cheaper, and more simple, until Mr. H. Talcott, of Jefferson, our Food and Dairy Commissioner, has one made by only just lining the inside of his barn with matched lumber one inch thick. Just a box one inch thick is all. When I talked with him he said they had emptied one box, or compartment, and did not have a bushel of ensilage that was poor. The cost of pit was a mere trifle.

A plan much used now is to board up inside, furrow out half an inch, and then lath and plaster with cement. This makes a cheap silo, and gives perfect satisfaction.

Our farmers have been in the habit of paying from $150 to $200 to get an outfit to do the cutting and elevating, and power to run it. This is not a serious expense; but Mr. I. J. Clapp, with whom I am acquainted, claims in a late number of *Hoard's Dairyman*, that it is all unnecessary to cut the corn to be put in a silo. He is a business man, has a cutter on hand, power, etc., but does not use them; he simply puts the corn in whole. The cattle eat it with but trifling loss. It was filled with but little expense, the work being done by the regular help, at their leisure, filling the bins about two feet at a time, and then letting them stand until the corn heats up to 130° before filling any more. This makes "sweet ensilage," not "sauerkraut." I do not know of any one who has made any of the sauerkraut kind late years. And that weighting with stones and use of jack-screws is also a thing of the past. They simply cover with tarred paper and lay on a few boards, and then throw on a load of poor hay, straw, or a little sawdust. Weight is of no use, now, only to hold the paper and boards down in place. Mr. Talcott was hulling clover just as his silo was filled, and put no paper or boards over, even, but just ran the clover chaff and straw right on the corn. Cows ate about all the covering.

Again, they used to cut the corn for ensilage when green and soft, sowing the seed thickly. It was poor, flashy feed. Now they sow only 8 to 12 quarts to the acre, so the sun can get in and make it healthy, and let it stand until the ears are about glazed. Nearly every stalk has an ear. A little bran with this makes a grand ration; 100 lbs. of Mr. Clapp's ensilage has about 16 lbs. of ear corn in it.

Now, the idea has all exploded that one can get a good deal more out of the silo than he puts in. The outrageous statements in this line at first, set many against it. But there is no question whatever now, friends, that the silo as now built and filled is a success, particularly in the dairy districts. At Windham Institute we heard figures of returns from a 60-cow dairy that were more than double the average. Inquiry showed that the man had built a silo every year for three years, and was intending to build *two* next year. The silo was not the only cause of his success; but the point is, the successful man is the one who knows whether a thing pays or not. His testimony would have more weight with me than that of a thousand who had never tried it.

If one raises corn, the silo furnishes the best known method of preserving it—that is all. You take the corn when just at its best, and put it in the silo and keep it in that condition, practically, until you get ready to feed it, and you can put a large amount of it in a very small space. Any one knows that, if that corn was left outdoors, put up ever so carefully, it would lose much of its value in two or three months, particularly if much rain fell. The silo saves this value, and makes the man more independent of weather. And, again, the succulence of the food makes it worth more to the dairyman. I know of a man in the East who kept over 70 cows, last year, on 70 acres, and sold 60 tons of hay. Ensilage the year round did it, and I think this man would laugh at friend L.'s talk against ensilage, and say, "By their fruits ye shall know them." Or, again, as friend Geo. F. Austin, of Wisconsin (who feeds 100 animals on ensilage), puts it: "When science says ensilage isn't a good thing, and my cows say it is, I will stand by the cows, every time." T. B. TERRY.

Hudson, O., Mar. 6, 1888.

I think, friends, the above covers the ground in a few words. How strange it is, that every great discovery or invention must first pass through the preliminary stages; and that, after these preliminary stages are past, we find many things that were the most expensive are of no importance at all.

OPEN VS. CLOSED SIDE SECTIONS.

SOME STRONG POINTS IN FAVOR OF THE FORMER.

DURING the past four years I have used perhaps 15,000 open-side sections without separators. For six years previous to this time, I used the ordinary closed-side sections, so I can speak from experience of the merits and demerits of each style. I started out about ten years ago with the double-tier wide frames, with tin separators. In comparing the work of colonies in top stories filled with these wide frames of sections with the work of similar colonies in similar top stories filled with large frames of comb or foundation for extracting, it was evident that the supers for extracting had some strong point in their favor. Even where both frames and sections were furnished alike (with comb or foundation), and other things being equal, almost two pounds could be expected in the large frames to one in the sections. We naturally look for some practical difference in the conditions which could cause this difference in results, and we notice those three impassable partitions running from side to side and from top to bottom of the one super, caused by the closed sides of the sections.

At some person's suggestion I tried removing one of the central frames of sections, and placing in its stead a comb for extracting, thus breaking through those partition walls. This proved to be quite an improvement. I decided that bees like large frames better than small ones. A neighbor of mine was using large 2-lb. "California" sections without separators, and with only a small scrap of comb as a starter. He got as nice comb honey, and more of it, than I did with my expensive separators and extra work. In 1882 I changed to 2-lb. sections and adopted a case to hold them, similar to the old-style Heddon case, only with three apartments instead of four.

I believe these large sections were entered more promptly and filled more rapidly than the smaller ones; but, not mentioning the common objections to large sections, our object was not yet fully accomplished. A new start must be made in each separate apartment, or cross-row. "Bait" combs could not well be used as an enticement, for it will not answer to place a section filled with comb by the side of one with only a starter, without a separator, which could not be used in this case; and if we have comb in all the sections of one cross-row it does not serve as an enticement for any other row, as there is no direct communication between the rows.

In 1883 I conceived the idea of opening up communication between these cross-rows by making entrances between the sections at the sides, like those at the top and bottom. I accordingly went back to the 1-lb. section with open sides, and contrived a case especially adapted to their use which has since developed into what I now call the "adjustable" case. The chief object of this change was to combine the advantages of large frames with those of small sections.

One important advantage is, that after work is once started anywhere in the case, the bees gradually work through into the next row, and on to the ends of the case in the direction the combs run, which is the natural way for bees to work; whereas with the closed sides, work must be started in four places, and then progress "across the grain."

Another advantage claimed is that of a more perfect ventilation, facilitating the ripening process. Practice proves that the objects sought are realized. The main object is the same as that sought by the many expensive and complicated contrivances under the heads of "reversible frames," "contraction dummies," "invertible hives," and "divisible brood-chambers" with the queen-excluders, which these things necessitate. In brief, it is to get honey stored in sections rather than in brood-combs. With full 10-frame L. brood-chambers, without contraction, inversion, or queen-exclusion, but with open-side sections above, I have found, throughout a good honey-flow, the queens holding their position up close to the top-bar, leaving always plenty of empty cells below and around the brood. From such colonies I have had good yields of comb honey with but few swarms, and at the close of the season I have found scarcely honey enough in all the ten brood combs to winter the colonies.

I do not claim that the use of open-side sections will give us *all* the advantages claimed for contraction and inversion; but with them there is not the necessity for the unnatural extremes of compulsion, to which many are now resorting.

The unfavorable reports from open-side sections are evidently the result of improper construction, poor workmanship, or the want of a suitable case to hold them. They should be pressed close together, especially from the ends of the case; and for easy manipulation the case should be capable of enlargement. OLIVER FOSTER.

Mt. Vernon, Iowa, Mar. 5, 1888.

Friend F., before I ever thought of putting four one-pound sections in an L. frame, I had made some experiments similar to yours. I found that, by tiering up Simplicity hives and letting the bees build full-sized combs, and fill them with honey, they could, under favorable circumstances, store enormous quantities, and I made some large yields in this very way, cutting up these brood-frames full of white comb honey to retail or put on the table. The next thing was to divide the brood-frame into eight square cakes. Doolittle and others had already been using a wide frame holding larger sections one tier deep. I first tried to get along without separators; but as my sections were full two inches wide, I had trouble. The quantity of honey stored was satisfactory, but some of the sections were fat and some were lean. I very soon decided that separators were detrimental to the rapid storage of honey; but it did not occur to me that a part of this objection to separators might be because the frames were pressed tightly together, dividing the whole hive into deep "pigeon-holes," as it were; and I confess that, with your explanation, it seems to me very likely that more honey can be secured with open-side sections than where the openings are only at the top and bottom. We should be very glad indeed to get reports from others who have tried both.

FLORIDA FLOWERS.

THEIR FRAGRANCE, ETC., AS DESCRIBED BY MRS. CHADDOCK.

LAST night we received a beautiful bouquet from Mr. Irving Keck, of Bowling Green, Florida. It was made up of orange-blossoms, grape-flowers, honeysuckles, yellow jessamine, roses, and a bud of the pomegranate. Orange-blossoms! just think of it! We have been reading of orange-blossoms all our lives, but never saw nor smelled any before. At first when we opened the box we thought that Mr. Keck had made a mistake. You know all the people in Florida have been busy sending fruit and flowers and presents of all kinds to Mrs. Frances Cleveland, and we thought this must be one of the bouquets intended for her that had gone astray, and come to us; so we hunted up the wrapper and read the address again: "Miss Jessie B. Chaddock, Vermont, Ill.;" then we doubted no more, but fell to enjoying the flowers, without restraint.

The yellow-jessamine flowers are the same kind that the bees gather the poisonous honey from that kills those who eat it. What a dreadful strong smell it has when held close! No wonder that the bees never work on it when they can find any thing else. All last evening till bedtime, all our rooms were full of the fragrance of orange-blossoms. Last night we put them in the cellar to keep them from freezing, and to-day we are inhaling them again. This afternoon the husband of a sick woman called, and he admired the flowers so much that we divided the bouquet and sent half of it to his wife. She has been sick for eight months, and is tired of every thing; and if those Florida flowers brighten an hour for her, and give her something to think of besides the pain in her limbs, they will not have traveled their thousand-mile journey in Uncle Sam's mail-coaches for nothing.

Vermont, Ill. MAHALA B. CHADDOCK.

HIVING ON EMPTY FRAMES.

HUTCHINSON'S PLAN OF SECURING COMB HONEY NOT A SUCCESS WITH J. P. ISRAEL.

THE cheapness of sugar, and the almost universal failure of the honey crop throughout the United States, has, for the first time in many years, brought the latter up above the former. Last year I sold most of my honey (all comb) at 6 cents, while I paid 7 and 8 for sugar. Before sugar fell so low it was far worse. Now, however, we have cheap sugar, and are likely to get a good price for our honey next season.

I do not think Mr. Hutchinson's plan of hiving swarms on empty frames will pay—at least, I *know it does not in this locality*. Mr. Hutchinson pleads hard in conventions and through the press to hive swarms on empty frames—arguing that they would do better than on a full set of combs or full sheets of foundation. It was an after-thought with him to advocate "empty frames, or nothing more than strips of foundation." Now, I had practiced putting in strips of foundation for three years before that, so I know exactly how bees would do on that; but I did it from economy, not because I believed they did better than on full sheets of foundation. But I took it for granted Mr. H. was a better bee-keeper than I, and that he knew what he was talking about. "Eureka!" I cried; "if we can hive swarms on empty frames, it will save me a world of work"—save me from "sitting up of nights" putting strips of foundation in frames. Last year was a good honey year in California. I therefore proceeded to put this plan into execution. With what glee and satisfaction I would catch up a hive, carry it to the swarm (they generally settle on low bushes here), give the bush a jerk, and land them at the mouth of the hive! "There, now! No more work for poor old Ned," and then I would dash on to the next swarm. So I went gayly through the honey season, putting 162 swarms on empty frames. It is not our custom to disturb the brood-chamber during the honey season; but you may imagine my surprise and consternation, after it was over, to find that, out of these 162 swarms, not more than 12 had built straight combs. Some were built right across the frames. The others were built cat-a-cornered, catawampus, and any other and all cats that you can imagine. I fell down under the shade of a friendly bush and groaned in spirit. The noise attracted my grandson, who came running up to me.

"O grandpa! what is the matter with you?"

My hand spasmodically rose and fell upon my stomach, and I could only groan, "Hutchinson, O W. Z.! W. Z.!"

"What is Hutchinson, grandpa? Have you got it in your stomach?"

"Yes, yes! I am full of him—O W. Z.! W. Z.!"

Off dashed the youngster to the house, and cried, "Run quick! run! grandpa is lying up in the apiary under a sumac-bush! He's got the Hutchinson *bad* in his stomach! And the W. Z. too—that's in his stomach too!"

In a moment the whole family were around me; but to all their questions I could only moan, "Oh! W. Z! W. Z.!"

The name of our friend is no more mentioned in my presence, fearing I may take a relapse.

This past year of 1887 was a sad one for the bee-keepers of California. My own situation will give you an idea of all, or nearly all, of them. In 1886 I sold from my apiary nearly ten tons of honey. Last year, "tell it not in Gath," I had not a pound to eat; and this, too, in a bee-range which is not excelled, if it is equalled in the world. The cause of the failure was simply *the way in which the rain fell.* Half an inch would fall at a time, followed by a dry wind, which would drink up all the moisture from the ground. Then may be an inch would fall, followed by the same result. So it kept on all winter. There was quite a profuse bloom of honey-plants, but no honey in them. The bees did not get enough to keep them six months. J. P. ISRAEL.

Olivenhain, San Diego Co., Cal.

I will explain to our readers, that the above was received six months ago, and it has been all this time waiting for a place. I presume friend I. has by this time hived new swarms again, and I would suggest that, no matter what the bees do, he keep an eye on proceedings. I would no more think of letting 162 swarms go ahead without watching, than to let the same number of men go to work for me anywhere. No matter how good men we have, we want to keep track of proceedings, in order to explain to them our wishes, even if nothing more. I presume the poor bees thought you wanted the combs built cat-a-cornered. etc. I do not remember that friend W. Z. specially advised us to do as *he* did. He simply gave us the results of his experiments, just as you, friend I., have given us the result of *yours.*

SALT AS A LUBRICANT.

MORE ABOUT THAT INVENTION FROM A TUMBLE INTO A PORK-BARREL.

ON page 111 you say that old readers will remember E. A. Morgan as the A B C child that grew so fast. Indeed they do, and well do I remember the zeal and eagerness I felt then. I fairly worshiped bees; and, if I do say it, there is not the man living to-day who studied, worked, and experimented more than I, and I claim to be as fully familiar with the trade from alpha to omega, or from the bee to the cash in pocket for honey as most of the fraternity. I shall never quit the business. You speak of the salt-water lubricant as a great invention, and the pork-barrel tumble as jumping from the sublime to the ridiculous. I hope friend Secor may give us a poem, as you suggest. To be sure, I did not study out the invention; but how long would it have taken for another bee-man to tumble into a briny pork-barrel? The secret has gone out, but sooner than I intended, and in a different way. As far as study or accidental discovery is concerned, I have this to say: That there are great principles existing to-day in nature, unknown to man, given by our Creator in the beginning, which will be discovered in time to come, which, if you or I could discover by study or by accident now. would make us millionaires in three minutes. They *will* be brought out; but in what way no one can tell, and it makes little difference, as I see, to us, if we get the benefit.

My bees are in winter quarters, where they will remain a month yet at least. Their condition I know nothing of. We have had the most terribly severe winter I ever experienced. Spirit thermometers dropped to 56 below zero here; and across the river in Wisconsin to 68 below on one occasion, and 40 below began to be called moderate weather. The snow is three feet deep on a level here now, and the weather shows no sign of spring.

Winona, Minn., Mar. 12, 1888. E. A. MORGAN.

Friend M., I for one do not want to be made a millionaire in *three minutes;* in fact, I do not want to be a millionaire at all. Even the thought of such a thing, with its attendant cares and responsibilities, makes me tired now. The above expression, and that one about 68 degrees below zero, sounds exactly like you. May be we are not very well posted here; but we were under the impression that 57 degrees was about as low as Dr. Kane found it when up near the north pole.

MALARIA AND THE HOME.

SOME SENSIBLE REMARKS IN REGARD TO THE PRESERVATION OF HEALTH.

MR. ROOT:—I like the remark you made last fall, that windmills enhance the purity of water; and this, in turn, must favorably affect both man and beast. While this is essentially true, yet I have noticed in most cases where the water supply is dependent upon a single well, whether a windmill is used or not, the arrangements are faulty. The well is in the back yard, usually not far from a barnyard fence. As a matter of economy, the stock-trough is placed as near the well as possible. Often a milk-house is near by, and the water passes through this into the trough. During the hot months the stock will stand for hours at the trough, fighting the flies and leaving quantities of filth. The well, not being far away, this filth ere long must contaminate it. Then, too, the surplus water often runs off into a basin at the end of the trough, for the benefit of the ducks and pigs. When the weather gets hot, the water here stagnates and the whole thing becomes a dangerous source of disease. The difficulty seems to be this: The trough is placed close, so that wooden conduits may be used. In so doing, the evils of contamination, dust, and flies are blindly overlooked. If a single well is used, the water should be piped to a trough at a safe distance from the house. Let no stock be allowed to approach near the kitchen door or well, to contaminate them in any way. There may be difficulties in the way of conducting the water to a sufficient distance from the house, by reason of the frost, but these can doubtless be overcome. If not, dig another well.

It would be well, also, to see that the cistern is kept clean, because the amount of dust and foreign matter that is washed down from the roof during a year would doubtless surprise one. Whether the cistern has a filter or not, the presence of leaves and washings therein is to be guarded against. Water, which enters so largely into the composition of our bodies, at best is kept pure only by the greatest vigilance.

But this is not all. At the present time there is danger of some vegetable matter being forgotten in cellars and root-houses. If this remains during the hot months, it will decay and fill the house with disease-germs, and that, too, without giving rise to any noticeable odors, doubtless. Cellars, as a rule, are damp and dark; and, when closed tight, are dangerous lurking-places for disease. During the summer months, the cellar windows should be thrown open; and some slacked lime sprinkled around lightly will have a purifying effect.

The air that surrounds the premises should be wholesome. When the ground is so wet that grass does not grow well in the yard, and the garden near by is lifeless, and the soil is not tillable till late in the season, it may be safely taken for granted that the location is too damp for the healthfulness of the family. *Thorough drainage,* then, is essential. Especially is it desirable, in locating, that the position can be drained to advantage. The lawn surrounding the house should be graded so that surface dashes will flow from the dwelling promptly.

It is a mistake to have the manure-pile or compost-heap near the house. I have noticed upon hot mornings, in early summer, after a rain, the vapors and odors arising from a decaying pile of cornstocks, and that, too, within an easy throw of the house. What a volume of poisonous exhalation must ascend from that putrifying mass, to be sucked into the lungs of man and beast ere it is carted to the field! Doubtless such things cease to be noticed, because they happen again and again each succeeding year.

With pure water and pure air are needed plenty of sunshine and a cheerful disposition—not that these will ward of dread malaria in every case; but having taken such precautions we can the more confidently ask God to protect us and our loved ones from its ravages. The day is approaching when disease and its cause will be stripped of its mysteries, and people will know that these matters, like others, are governed by definite laws.

Doubtless there are other matters equally important as those touched upon; but the intent of this is to remind rather than to instruct. J. R. D.

Jamestown, O., March, 1888.

Thanks, friend D. There is no trouble at all in having the windmill and well located several hundred feet from the watering-trough for stock. Our own is about 200 feet away. The pipe is only about 2½ feet under ground, but there is a sod over it, and there has not been a bit of trouble from frost this winter. The pipe comes down through a little valley, and the watering-trough is on a little rise of ground, so there is always a dry place for the stock to stand around it. The surplus water goes directly into the carp-pond, so there is no sloppy mud-hole anywhere about. I did not think of it at the time; but as you present it, I do think it very important that the watering-place where stock often congregate should be at a good safe distance from the well. Our poultry get water from a low tub sawed off from an oil-barrel. This tub is just the right height for them to drink conveniently, and it is light enough to be thoroughly rinsed out without very much exertion. Not only should the ground around the home be thorougly underdrained, but the sun should be permitted to shine on all sides. An excellent little book, entitled "Healthy

Homes and Food for the Working Classes," has just been written on this subject by Mr. Victor C. Vaughan, Professor in the University of Michigan, and published by Irving A. Watson, Concord, N. H., of whom it can be obtained at the very low price of five cents. This book makes the statement, that a family which had formerly been healthy became so sickly as to be the remark of the neighborhood, just because large factories were built so near as to cut off the sunlight from the house and dooryard.

STINGS.

THE VARIOUS EFFECTS DEPENDENT UPON CIRCUMSTANCES.

I DESIRE to put on record a few facts on this subject, drawn from my own experience while in the bee-business. I always worked with my bees bare-handed, merely guarding against bees passing up inside of my sleeve. In the course of a year I received many stings on my hands. When I began keeping bees I dreaded a sting very much. It was not only painful, but usually followed by swelling which often lasted over 24 hours. After a time I ceased to dread them, and noticed them as little as possible, and they seemed to be less painful, and scarcely ever caused swelling. If during the day I received a number of stings I would feel drowsy in the evening, and desired to retire early. At least, I imagined that my drowsiness was caused by the stings. I also thought severe stinging caused a burning, itching sensation in my eyelids, and it seemed to me that each year I could notice this soreness in my eyelids increasing.

Once a bee-sting made me sick and faint. I was stung in the small of my back, the bee stinging through my shirt. It caused me intense pain, and I grew sick and faint, and with difficulty reached the house. The day was sultry, and I was very warm at the time, and therefore I could not say how much of my illness was owing to the sting. After an hour's rest I felt all right. My wife often assisted me in my apiary, and frequently received stings, with no serious inconvenience; but one day, as she was busy about her housework a cross bee darted at her and stung her on the neck. She complained of intense pain, and soon became so ill that she had to lie down. Her whole body was somewhat affected, as a rash came out all over her body. Her sickness lasted probably six hours.

One day I was taking off combs to extract. My little daughter, then about twelve years old, was blowing the smoker for me. She was well protected, but in some way a bee crawled inside her hat and stung her, when she suddenly dropped the smoker and made tracks for the house. About half an hour later my wife called me in to see the effects of the sting. She had been stung on the neck, which was somewhat swollen; but the most swelling was about her eyes, which were swollen so much she could scarcely see. She also seemed drowsy, and, after a couple of hours' sleep, seemed as well as usual; but her eyelids were still somewhat swollen at bedtime. She has had frequent stings since, but none produced any thing like a similar effect.

I remember being in the house of a physician one evening when he returned from visiting his patients. He said he had been called in to a house in the village to see a boy who had been stung by a bee, and was surprised to find him quite sick and his body covered with a rash, as though he had scarlet fever. The boy's parents were alarmed, but the physician told them the lad would be all right by morning. My experience has led to the conclusion that the effects of bee-stings are not always the same. The anger of the bee, the amount of poison injected, the place stung, and the condition of the system, all have an effect. If a person is stung, and the sting proves troublesome, he need not infer that it will be always so, and thus be deterred from ever looking at a hive of bees. The effect of the next sting received may be quite different.

Morea, Ill., March 14, 1888. W. D. RALSTON.

Friend R., there is one point you do not make quite plain. Are we to understand it was when you first commenced working with bees that you had those disagreeable symptoms, and that the more you were stung the less the stings seemed to affect your system? A great many people are affected by a kind of rash such as you describe, breaking out all over the body; but so far as my personal experience goes, it never results in any thing worse than getting a whole neighborhood excited, and repeating to everybody the way in which the patient behaved, and the way the poison acted, etc.

WINTERED WITHOUT LOSS.

MORE STORES CONSUMED ON SUMMER STANDS.

I HAVE been looking over my bees to-day, and find them all alive, with plenty of stores to last them another month. This is the first winter that I have wintered bees without loss; and I can only give credit to the sugar I fed them last fall. It is the first time that I have wintered on sugar. Part of the colonies were in the cellar and part on summer stands. They wintered equally well, except those on summer stands have consumed about $\frac{1}{3}$ more food than did those in the cellar.

FOUNDATION DIPPED AN EVEN THICKNESS.

I agree with friend Elwood, page 160, that foundation ought to be dipped to an even thickness. Too many depend on the rollers to thin out the last or thick end. I want my wax dipped so a pile of wax sheets will be level from end to end and from side to side.

HOW TO DIP.

To do this the wax must be at the right temperature, so as to get what you want at one dip. The board must be put in slick and easy. It must be drawn out slow and steady, no stopping half way, or the sheets will have a ridge; and if the board is drawn out too fast, the wax runs and makes the lower edge thick. It is slow work to dip the right kind of sheets for thin foundation; but what is worth doing at all is worth doing well, even though we have only a few colonies of bees.

A COMPLETE FAILURE LAST YEAR.

We had a complete failure here last year; but every thing looks encouraging so far, and those that fed their bees last year will be well paid, as honey will bring a good price.

R. B. LEAHY—62, 62.

Higginsville, Mo., Mar. 12, 1888.

HEADS OF GRAIN

FROM DIFFERENT FIELDS.

HOW TO PREVENT SWARMING.

G. D. ROGERS, in March 1 GLEANINGS, asks how to prevent swarming when working for comb honey. As a small or medium brood-chamber is more essential in securing comb than extracted honey, the tendency to swarm is increased when, for this object, the queen's limits are diminished. For several seasons past I have been running over 100 colonies, principally for honey in sections, and have had my patience sorely tested by after-swarming, which would result in leaving hundreds of partly filled boxes on the parent hive. After exhausting, without benefit, most of the remedies suggested, in manuals, I adopted the following plan, which I do not remember having seen in print:

Let the colony swarm once, of necessity, and mark the date on the hive. In about a week, when the queen-cells and brood are all capped, cut out and destroy every cell in the hive. This colony is now hopelessly queenless, which it will discover in the course of another week. They will not often swarm without a queen, and the colony thus treated will abandon the swarming impulse and finish the sections. When they have settled down to business, with a handful of ripe cells from good stock pass in front of the hives, and, coming to one marked "queenless," either pick open a hatching cell and let the queen run in at the entrance; or, if the cell is not mature, lay it at the entrance. In the latter plan the bees will immediately cluster and remain on the cell until it hatches, and is much easier than to lift of surplus boxes to insert it between brood-frames. Now erase from this hive the queenless mark and go to the next.

The above plan I practiced the past season; and although I never saw bees have the fever worse than in June last, all colonies thus treated were effectually quieted. The above plan retains in the old hive a large body of young workers, and the queen will be just the right age to fill the hive with young bees in the fall for wintering. And last, but not least, this method enables the apiarist to introduce his best stock into inferior colonies.

Waldron, Mich., March 12, 1888. L. HUBBARD.

Your plan will answer, as a general thing, I believe, friend H., but we should call it a loss of time to leave the hive so long without a laying queen.

SWARM ABSCONDING WITH UNSEALED BROOD IN THE HIVE.

I could not get my natural swarms to stick to five combs, though I used unsealed brood in all of them. I had two swarms go to the woods, but gave chase and brought them back. The most comb honey obtained from any one colony was 112 lbs. This colony was blacks. They also cast a large swarm. L. H. ROBEY.

Worthington, W. Va., Feb. 7, 1888.

Friend R., if you mean that five combs containing unsealed brood did not prevent your bees from swarming out, they must have got the swarming mania pretty badly. I am afraid, however, that giving them so many combs of brood made them feel as if they were in the old hive still, and therefore they swarmed out to get where there was not so much of an establishment already started. One comb containing unsealed brood has always been sufficient to hold any quantity of bees from a teacupful to a peck; and the principal advantage of this comb of unsealed brood is that it holds the colony, even if they have no queen at all; while without this brood a lot of bees without a queen would decamp in no time.

A NEW HONEY-PLANT.

In cape colony, Africa, grow about 60 different species of *protea*. Some of them give honey, the most (*protea melifera*), by the natives called zuykerbosches, zuykerboom, or tulpboom. It has so great a quantity of nectar that the same is gathered and evaporated to a syrup, which is sold and used as medicine by the natives. This syrup has a flavor similar to bananas. The plant blossoms in the fall, and the flowers are half full of this nectar. I think it would be very desirable to get this plant from Cape Colony, and to try its cultivation in the U. S. L. STACHELHAUSEN.

Selma, Texas, Mar. 8, 1888.

Why, friend S., can't you get us some seeds of this wonderful plant? I do not believe we should ever be able to pronounce those fearful jaw-breaking names; but if we could get the posies and dip out the honey we would try to be content.

ON CARP-PONDS; SOME QUESTIONS.

Mr. Peirce, in his A B C of Carp Culture, says we can not make a success of the business unless we have three ponds. 1. Do you not think one could raise enough fish in one pond for family use? 2. Would it do to make a pond at the outlet of a 40-rod tile drain, with a spring three or four rods above the outlet? 3. Do you consider your pond a paying investment? 4. Would it pay a farmer, who has his hands already full, to have a pond for his own use, with a view to having some to sell? Carp-raising is entirely new in this part of the country—no ponds that I know of. 5. Would a pond a third of a mile from the house be more liable to be molested than bees? MRS. L. C. AXTELL.

Roseville, Ill.

There is no trouble about raising fish in one pond, Mrs. A., unless you wish to go into breeding them largely; then it is an advantage to have the small fish separated from the large ones. A neighbor of ours, who lives several miles out in the country, says he would not be without his carp-pond, just because of the ease with which he can get a fish at any time when they happen to be short of meat in the house. For instance, company comes, and the butcher-shop is too far away to think of sending for meat. The fish-pond is handy, and our friend catches them with a hook and line, in a very few minutes, by baiting the hook with a cracker. I should think your suggestion an excellent one, especially if your spring is strong enough to keep the pond from drying up in the summer time. Our pond is a paying investment on account of the ice it furnishes, but it has not yet been so for the fish alone. The muskrats still trouble us, although we have killed great numbers of them. I should think a carp-pond would not be so liable to be molested as bees. I think it would pay to raise fish where one has the conveniences for so doing.

DIRECTIONS FOR CULTIVATING BEE-BALM, OR MELISSA.

In answer to an inquiry to the introducer of this new honey-plant, we get the following:

Friend Root:—Plant seeds in open ground in spring, as soon as ground is fit to work; or seeds can be planted in the fall, just before the ground freezes. If a horse is used for cultivating, plant in hills 3 ft. apart each way; not more than one plant should be allowed to grow in a hill; if cultivated by hand, 12 inches apart. Plants should not be *crowded;* for if the soil is *rich* they grow (in this latitude) nearly 9 ft. in circumference. Keep it free from weeds the *first* year, then after they will take care of themselves. Enough seeds will scatter to cover the ground the following season, and will spring up before weeds start. A. C. TYRRELL.

Madison, Neb., Mar. 3, 1888.

ITALIANS SUPERIOR; HOW BEE-JOURNALS SAVE MONEY, ETC.

Bees have wintered pretty well so far, though I hear of a good many dying, especially in box hives. I lost 3 out of 56; cause, too few bees and not enough honey. Last year settled *for me* the question of superiority between Italians and blacks. While the former were strong, filled their hives, and made a little surplus, the blacks did not do any thing, and I had to feed every one of them. All the surplus I got was disposed of at 25 cts. per lb. So much for being posted by reading GLEANINGS and the *A. B. J.* Last year I sowed 20 acres of alsike, and I should like to save the seed this year, but do not know how, as I have no experience; could GLEANINGS tell me and others how to do it, when to cut it, how to handle the hay, and how to get the seed out of it? Is mammoth clover and peavine clover the same thing? From something said in GLEANINGS I drew the conclusion that mammoth clover was better for honey than the common red clover. Is that so? for if it is, we could sow it for fertilizing in preference to the latter. I have never yet seen a bee on the red clover. Have you any Chapman honey-plants for sale—those that will bloom this year, and what is their price? G. GROSS.

Greenville, Ill., Feb. 23, 1888.

We copy the following from the A B C book:

SAVING THE SEED.

The seed is always saved from the first crop of blossoms, and it should be allowed to stand about two weeks longer than when cut for hay. If you wish to get a good price for your seed, it must be very nicely cleaned. It is thrashed out with a clover-huller, made expressly for clover seed, and then cleaned by a fanning-mill, with the appropriate sieves. As timothy seed is very nearly of the same size, it is difficult to remove it all, unless by a fanning-mill having the proper blast arrangement. As the alsike weighs 60 lbs. to the bushel, and timothy only 45, there is no great difficulty in doing it effectually.

Mammoth clover and peavine are one and the same thing; and a good many reports seem to indicate that this large clover is better for bees than the common red clover. I suppose it is better adapted to some localities than some others. If you have Italian bees, I am quite sure you can find them on red clover if you go through the fields at a time when bees are at work on white clover. We may have a few Chapman honey-plants to send by mail; but the plant does not seem to make very much headway on our soil unless we give it more care than we can afford. A year ago, a great many little plants sprang up from the seed that dropped from our old plants; and although we gave them considerable care, and transplanted several hundred, not one of them blossomed last year. If they have not been killed out by the hard winter, we will fix a price on them as soon as they are up.

A DOLLAR A POUND FOR HOARHOUND HONEY; IS THE NEWSPAPER STORY TRUE?

Inclosed you will find an article clipped from one of our local papers, the weekly *Record-Union.* What do you think of that for California? I think it is stretched a great deal. I think we had better all go into the honey-business. C. B.

Eds. Record-Union:—I notice a telegram in your issue of the 6th inst., from Redding, mentioning an establishment there of an apiary by W. M. Hoge. This gentleman is establishing an apiary fifteen miles from here, and has twenty acres of hoarhound under cultivation. Last spring he brought 200 swarms of bees through here, and I understand from his superintendent that these increased during the summer to 275 swarms.

This hoarhound-plant is the most wonderful honey-producer I ever saw; and the bees cluster in great numbers upon it. I understand that Mr. Hoge (who is from Brooklyn, New York) calculates to average next year 250 lbs. of this hoarhound honey to the swarm, and that he has had overtures made him by a large New York druggist for his entire production for the next twenty-five years at fifty cts. per pound, but his crops have yielded him up to this time fully one dollar per pound. He declined the offer. This same man is successfully growing bergamot, and making oil of bergamot right here in this county. JAMES DAWSON.

Oroville, Cal., Dec. 7, 1887.

Many thanks for the facts you furnish, friend D. Are we to understand that you have *seen* the bees working on the hoarhound? and do you *know* that William Hoge has twenty acres of land under cultivation? Unless you know from personal observation that the item you give us is true, I shall be inclined to think much of it is some sensational newspaper story. In fact, I very much doubt if any druggist can be found anywhere who will give the price for hoarhound honey that you mention. Can you give us the postoffice address nearest to Hoge's plantation?

THIN FOUNDATION FOR TEN MILLION POUNDS OF HONEY.

If we were not interested in the business of foundation-making, we would state in you paper that we have sold thin foundation with natural base, enough for nearly *ten million pounds* of honey, and have never had a complaint of its being too heavy, or, if we did, we have forgotten it. This is in reference to the article of Mr. Elwood.

CHAS. DADANT & SON.

Hamilton, Hancock Co., Ill.

Friend D. & Sons, I am not going to discuss flat-bottom foundation just now; but I want to say, that the men who manufacture any commodity on a large scale are the very ones we want a report from. Of course, you are interested; but so long as you have no patent-right to push, nor any thing of that sort, we are very glad of your experience; and even if it should advertise your business indirectly, we are glad of that. Where a man writes an article which, on the face of it, is evidently to advertise his business, we don't want it; but when he writes as you always do, to bring out the truth, no matter whom it favors, we are always glad to hear from such. I think Prof. Cook has set us a good example in his writings and in our institutes. He says he is always glad to recommend a good implement or a good man, whenever it comes naturally into the discussion. I do want to add, however, that one plea which friend Elwood made for the flat-bottom foundation was, that we can get more square feet to the pound than we can where the base is made the natural shape. Well, this is desirable to the honey-producer and the honey-consumer. Neither one wants an ounce more of beeswax in comb honey than is absolutely necessary for the safety of said honey.

SPACE BETWEEN COMBS.

Tell us if it is important to have all spaces in a hive ¼ to ⅜ inches. Nearly all the bees in box hives have died in our neighborhood this winter. On examination of some I found the frames homemade, and at very irregular distances apart, compelling the bees to build very thick combs. Is it probable that the honey put in these thick combs did not ripen sufficiently for winter food? Would a queen lay as readily in these thick combs as those of the right thickness? What is the right thickness for combs? J. I. BROUGHT.

Strode's Mills, Pa., Feb. 25, 1888.

Friend B., the irregular combs, and those of great thickness, would be a detriment to rapid brood-rearing; but I should hardly think it was the cause of the bees dying. Brood can not be reared in these thick combs. They must be cut down first; and the bees often do this, even if it leaves a big space between one comb and the one adjoining. I should think it quite likely that the contents of thick combs would not be as good for winter food.

ABOUT THAT PORTRAIT ENGRAVING.

Mr. Root:—Do you know I do not think that I am a big enough bee-keeper to be put in GLEANINGS? I am a big enough woman, plenty big enough, but not a big enough bee-keeper. If I were running GLEANINGS I would not admit anybody's picture to its columns who had less than a hundred colonies of bees, and who had not realized at least a thousand dollars from the sale of honey and bees in a single year. This would be my test of a successful bee-keeper—lots of bees and lots of money. I have never had more than thirty colonies at one time, and never made more than a hundred dollars out of bees in any one year, and these hundred-dollar years are about as scarce as angels' visits. I must thank the engraver for making the picture better than the photograph, and also thank Mrs. L. Harrison for her complimentary sketch.

MAHALA B. CHADDOCK.

Vermont, Ill., Feb. 14, 1888.

Why, my good friend, your condition of admittance, I am afraid, would take us all out. It is true, there are a few who make a thousand dollars a year from the sale of bees and honey; but when they make so much money they generally get proud, and won't send us their picture nor write for GLEANINGS, nor answer questions; so you see it may be lucky after all that you have not made any more than you say—that is, lucky for the rest of us

THE HOUSE APIARY; SHOULD ANY CHANGE BE MADE IN THE ONE DESCRIBED IN THE A B C OF BEE CULTURE?

I have been interested in bee culture for a good many years, and have always been especially interested in your writings on the subject. Your A B C has been invaluable to me, and is often consulted. I contemplate moving my apiary, which consists of 20 colonies, from my home in the city to the country. It seems desirable for many reasons that I should build a bee-house. In the A B C you describe an octagonal house which you say had been in use for two years. In your experience since then, would you suggest any changes or improvements on the plans there given?

Syracuse, N. Y., Feb. 27, 1888. M. C. HAND.

We have no improvements to suggest in house apiaries, other than those already given in the A B C. If we made any change, however, it would be something to carry away the smoke that accumulates from the smoker while at work inside. Perhaps a ventilator in the top of the room might answer the purpose. Oh, yes! a bee-escape in the door would be very desirable too. We will shortly give a diagram and description of C. C. Miller's bee-escape.

THE EGYPTIAN BEES, AND SOMETHING ABOUT THEIR DISPOSITION.

Please let me know if you know any one in the United States who has the Egyptian bees, as I want to get them. A. Y. CHRISMAN.

Hanford, Cal., Mar. 4, 1888.

Friend C., we believe there is no one in the United States who furnishes the Egyptian bees. Some years ago a colony was imported, but they were found to be so vindictive —yes, so terribly savage—that no one would handle them. They have been known in their native climate, when enraged, to even pursue sailing crafts down the Nile, compelling the sailors and passengers to go below. Mr. D. A. Jones said that, while on his Eastern tour, he once opened a colony by working with the utmost caution; and, moving as gently and as slowly as possible for him to do, he was enabled to make some sort of an examination. If we are correct, however, he was finally obliged to retreat in inglorious defeat.

GOT THE SWEATS.

I have lost one hive with the sweats, I think. The combs were all sweat, and there were scarcely any bees. There was 29 lbs. of honey in the hive. I have another hive, the bees in which are humming all the time. I gave them three frames of honey, but they still hum. What is the matter? I have read your A B C book, but can't find any thing about it. J. PEAKER.

Macksburg, O., Mar. 5, 1888.

You say your bees have the "sweats." From your description I am inclined to think they have the dysentery. Look for that head in your A B C book. I have sometimes seen colonies affected with dysentery, which appeared wet, or "sweaty," as you express it. When this condition of affairs is observed, the colony is pretty badly affected. The other colony you speak of is probably likewise affected with dysentery. They are doubtless uneasy, and you will possibly find them scattered pretty well throughout the brood-nest. A few warm days, so that they can fly, will be about as good a remedy as they can have. A colony may be queenless; if so, they will hum, about as you state it, and not be diseased either. Very recently we found one such. These we united with another colony, as we feared they would die before warm weather.

TASMANIAN MEDICINAL HONEY; IS THE STORY TOLD ON PAGE 875 OF LAST YEAR TRUE?

Mr. Root:—GLEANINGS of Nov. 15 has a paragraph on Tasmanian medicinal honey, and you ask, "Can any of our readers tell us if such trees exist?" Is it necessary to ask the question? If it took 40 Kanakas joining hands to reach round one of these trees, that tree must have had a circumference of *at least* 200 feet, as most men can easily stretch 5 ft. Now, sir, how did Mr. Guilmeth cut two or three of these trees down? and how long did he take for the job? Fancy cutting down trees 60 feet in diameter, to get at a honey-nest! This "cutting down" statement seems to me to spoil the story entirely. That eucalyptus honey has certain medicinal virtues I believe is true; and many people here can vouch for its excellence for throat affections. But I much question the value of the statement of Mr. Caraman, a copy of which I inclose.

F. A. JOYNER.

Adelaide, South Australia, Jan. 14, 1888.

Many thanks, friend J. I am ashamed of myself to think that I let that paragraph go into print without noticing the point you make. I *did* protest some, you may remember, and I thought the whole story looked fishy. Is it not possible that this number 40 is a misprint, and that they meant only *four* men? And I tell you I should hate to chop a tree down that would take even four men to reach around it. I do not think I should cut very many of them the same day, especially if I had to do it by chopping. Many thanks to you also, for the additional facts you furnish.

DANIEL M'FADDEN'S METHOD OF WINTERING PUT TO THE TEST.

Friend Root:—I was greatly interested in Daniel McFadden's plan of wintering bees without stores, and thought I would sacrifice one swarm to see if I could make it work. So when feeding up my weak swarms for winter I left a large light one without feeding. When the first snow came, or when it was about six inches deep, and it was very cold, I took off the cover of the hive in the forenoon, thinking that the bees would soon freeze; but they commenced a roaring noise, and kept it up all the afternoon. Is that not their way of warming up their hive? I went to them after sunset, and they were still roaring. I carried them to the cave I had fixed, and set them in and put the cover on, but did not put it down tight. I left them till morning, when I found them quiet. I then covered them with snow carefully, and they are now under about three feet of it.

You have mentioned the canning of tomatoes several times in GLEANINGS. Can it be done on a small scale, and by one who is not an expert at the business, and be made profitable?

A year or two ago you were asking for some method to keep green corn. If I remember correctly, I ate some a few days ago that had been boiled and then put in brine. It was just as good as when fresh, so far as I could see.

Bees are wintering well, I think. They are packed in chaff, and are in a bee-cellar where it has not frozen any this winter. How much will you give me for the one under the snow? A. B. C.

Woodville, Wis., Jan. 16, 1888.

I am glad you tried the experiment, my friend; but I have not faith enough in it to make you an offer for the bees.—Tomatoes can not be canned on a small scale very well, so as to pay expenses, at the prices we buy them for in the market. As those we canned ourselves are already sold out, we are now buying very nice ones at a little less than 10 cts. per can; and unless you work very closely, the labor and cost of cans will amount to the 10 cts., so you see you get nothing at all for your tomatoes. These things have to be done in a systematized way, in a factory, or something equivalent. I do not quite understand how you could put your boiled corn into brine without getting it so full of salt that it would spoil it for use. Can you make it a little plainer for the readers of GLEANINGS?

NOTES AND QUERIES.

THAT CALIFORNIA HONEY.

IF any one wants any reference for your California honey, just send him to me. I was where it was produced, and had a taste of the mountain-sage honey from friend Wilkin's table, and it was as good as our white-clover honey. The blue sage is not quite as good. I found friend Wilkin a very sociable bee-friend. I went to California to make it my home, if every thing could have worked to suit; but I had to leave for the east soon, and did not get back to see friend Wilkin.

Jewett, Ohio, Mar. 16, 1888. DAVID LUCAS.

Is ventilation from the top of a hive necessary to safe wintering? D. A. TOWNSEND.

Portageville, N. Y., Mar. 5, 1888.

[The matter of ventilation is a mooted one. Top ventilation is not absolutely necessary, if a large entrance is allowed. We use both in outdoor wintering—that is, such top ventilation as is afforded through 6 or 8 inches of loose chaff.]

FOOT-POWER AND HAND-POWER, VERSUS STEAM FOR HIVE-MAKING.

Which is the best or most convenient for hive-making—a foot or hand power buzz-saw?

Fowlerville, Mich. N. T. HOLMES.

[If you have got a good strong man to turn the crank of a hand-power machine, and yourself do the cutting, you can get along very well; but a little engine would be cheaper. Foot-power and hand-power both are quite unsatisfactory if you have very much hive-making to do. Small engines are now sold so cheaply that it is much better to use steam.

A CORRECTION.

There is a mistake in your figures, page 164, second column, near the top. The winter of 1881 and '2 we lost two colonies. GLEANINGS says, 42 lost out of 157. It should be 2, not 42. All the rest is right.

Platteville, Wis. EDWIN FRANCE.

Will one of your two-horse engines run a 36-inch circular saw? I suppose I should have a larger engine, but I am not able to purchase it.

MILES COLEMAN.

Powell's Mills, Ky., Mar. 7, 1888.

[A two-horse-power engine would hardly run a 36-inch saw and make it do any work; in fact, a 5 H. P. engine would have all it could do. If the saw were going through, say, 14 inches of hard dry wood it might require a six or eight H. P. engine.]

A QUEEN FLYING OUT IN JANUARY.

I had a queen come out the 5th of January. What is the cause? Does such occur often? She flew in front of the hive like bees marking the location. JOHN W. PALMER.

Marble Hill, Bolinger Co., Mo., Jan. 18, 1888.

[As a rule, it is unusual for a queen to come out in January; but in your warmer locality it may not be so strange. Without knowing more of the facts in regard to the case, I would suggest that the old queen had been superseded, and a younger one came out on her wedding-trip, supposing, of course, the weather was warm enough for the bees to fly freely. Her behavior in marking the location would indicate this.]

CAN BEES BE KEPT WITH PROFIT A MILE AND A HALF ABOVE THE LEVEL OF THE SEA?

I should like to know if one could reasonably expect to succeed with bees at this altitude—7500 feet above the level of the sea. I have had some experience. Because of the cold nights, honey was not secreted in any considerable quantity. There is an abundance of flowers here, but the nights are always very cold and even frosty. C. E. CARROLL.

Liberty, Rio Grande Co., Colorado.

[I am afraid, friend C., that there are not many of us who have had experience in the line you mention; but I should say, on general principles, where there are flowers that secrete honey the bees would prosper, no matter how high up or low down they are located.]

CAN CYPRIAN AND HOLY-LAND BLOOD BE DETECTED IF PRESENT IN THE BEES?

In testing Italian queens, can it always be detected if the queen mates with a drone part Cyprian or Holy-Land? If so, how? B. J. RICE.

West Fallbrook, Cal., Feb. 27, 1888.

[If the progeny of any queen has any of the blood of any Holy-Land bees, they will show more or less disposition to build queen-cells and increase. The fuzz-bands will also, perhaps, be a little whiter, and the yellow bands a little lighter yellow. If the bees are crossed with Cyprians, the yellow bands will also be a lighter color, and at the base of the thorax you will find occasionally on the bees the characteristic shield of the pure Cyprian.]

HOW TO KEEP COMBS FROM BEING WORM-EATEN.

I have 40 or 50 empty or partly filled frames that I shall not need till summer. If I put them in a tight box before warm weather comes, will I be troubled with moth worms? RUFUS BUCKLEY.

Hampton, Neb., Feb. 29, 1888.

[Combs stored away as you mention will not be troubled by moth worms. We keep ours in Simplicity hives, with the entrances closed tight, oftentimes during the entire summer. When the moth miller has once got at them, shutting them up in a tight box will not prevent their being worm-eaten. In your case, if there were any eggs in the combs they have doubtless been killed by freezing.

OUR QUESTION-BOX,

With Replies from our best Authorities on Bees.

All queries sent in for this department should be briefly stated, and free from any possible ambiguity. The question or questions should be written upon a separate slip of paper, and marked, "For Our Question-Box."

QUESTION NO. 43.—*Is it policy to sit down a part of the time when at work over the hives? Jones thinks it is, and is laughed at by Brown because he (Jones) likes to take it easy. Both are energetic men, and both make bees pay in average seasons. Which of the two, in the same time, will accomplish the larger amount of work consistent with the proper economy of physical strength?*

It is policy to economize our strength.

W. Z. HUTCHINSON.

1. Yes, sir'ee; it is policy for me, and I'd enjoy Brown's laugh. 2. Jones. DR. A. B. MASON.

Yes. Place edgewise on the ground the cover of the hive removed, for a stool to sit on. Jones is right. H. R. BOARDMAN.

I can't answer for Jones or Brown, but I like it. I believe a hard-worked horse will do more with an occasional breathing-spell. A. J. COOK.

If you feel like it, and more particularly if your back requires it, sit down. The bow that is never unstrung will lose its elasticity.

MRS. L. HARRISON.

Yes, if you can work as fast while sitting as while standing; and Jones can do the most work if he doesn't carry his sitting-down to an extreme.

O. O. POPPLETON.

Do as you please. When we are tired, we rest. Some people take the world hard, others take it easy. There is a reasonable mean between the two.

DADANT & SON.

1. Dr. Miller, who is good authority, says sit down. I used to think otherwise; but now the more I can sit down at my work in the bee-yard, the better. 2. Very little difference, after a person gets used to either plan. G. M. DOOLITTLE.

I have never seen the sit-down bee-keepers make the business pay. I do not think I should do it, and I don't want any of that class in my employ. Our hive and apiary system are based on a different plan altogether. JAMES HEDDON.

It is always wise not to go beyond one's strength. I never could stop to sit down or rest, and years of suffering have been the result. Older bee-keepers need no advice. To the young I would say, with all sincerity, "Go steady and sure." L. C. ROOT.

Neighbor Brown, do you just let neighbor Jones alone, and mind your own bees' (nest). Neighbor Jones, don't you heed him. Adopt brother Hutchinson's invention, and have a nice convenient stool strapped to your person. That will make sitting down a fine art, as it were, and give Mr. Brown something to laugh at. E. E. HASTY.

With our hives some kinds of work can be done to better advantage sitting than standing, and our hive-caps are just the right height for a comfortable seat. When I can find a queen more quickly by sitting, why should I stand? The hired man who accomplishes the most work with the least labor or exertion is the best, and I suppose it is the same with bee-keepers who work for board and clothes.

P. H. ELWOOD.

If your hives are only two or three inches from the ground you will soon find out that you would like to do as Jones does. Brown may have an iron-clad back, but you will not find many who can stoop down over hives all day, wishing they had something to sit on for a while. PAUL L. VIALLON.

Marion Harland, in that excellent book, "Common Sense in the Household," says, "I lay it down as a safe and imperative rule for kitchen use, *Never stand when you can do your work as well while sitting.*" It's a good rule for bee-keepers, if you make it "as well and as rapidly." The man who sits part of the time will accomplish more, because he does not waste strength in standing or stooping which can be utilized in solid work.
C. C. MILLER.

If I get tired working with the bees, and have time to sit down to rest, I prefer to go and sit in the shade, instead of sitting down and working over a bee-hive. If Jones will come and work in my crew of honey-slingers, and find any time or place to sit down and keep the work moving right along as lively as those who are on their feet, then I shall be mistaken. Very likely a man working over nucleus hives, raising queens, could find it practical to sit a part of the time; but working over our big hives extracting honey, I don't think any one could make it pay to sit down to work. E. FRANCE.

I always sit down when working over a hive, and I'll wager a sum that I'll handle as many colonies as the next man. I have, with one assistant (who did the running and carrying), done all the work on 900 colonies, except the hiving of swarms, and I think I did it well too. A man must have a back of cast iron to examine colony after colony, lift heavy combs and boxes, with the hot July or August sun overhead, and all the while maintain a "Grecian bend" attitude. The first thing I do on approaching a hive is to lift the cover-box from the hive, set it up edgewise on the side of the hive, sit down on it, then go ahead. When I am through with the work on the hive I go to the next and the assistant replaces the cover-box. GEO. GRIMM.

Well, friends, when I started out to read the above, I began to think it was going to be all on one side. Heddon, however, comes right down emphatic; and our good friend France backs him up pretty well. Dr. Miller thinks the bee-keeper ought to sit down, and no wonder. If I were as big as he is, I think I should sit down a good deal oftener than I do, very likely, whether I wanted to or not. Well, Heddon, who weighs about the same as I do—may be a little more—and very likely gets over the ground about as I do, would have no patience with one who has to sit down. May be if friend Heddon and I should hire out to somebody by the day, so that we were obliged to put in a solid ten hours or more, stooping over the hives, perhaps we should think differently, and perhaps have a little more charity. Dadant says there is a reasonable mean, and I think he is right. There is quite a difference between a man who sits down because he is too lazy to stand up, and the one who has done so much during the day that it is due, both to himself and his employer, that he should save his strength by sitting down a little; therefore I think it is hard to lay down rules. Let a man do as he chooses in such a matter, and gauge his pay according to the amount he accomplishes. See an *article* touching on this from George Grimm in next issue.

QUESTION NO. 44. *I have a lot of sections with starters in them, which the bees did not draw out. Would you use them, or put other starters in them the coming season?*

Use. GEO. GRIMM.

Use them. W. Z. HUTCHINSON.

Use them, if clean. DADANT & SON

I would use them. DR. A. B. MASON.

I would use them. MRS. L. HARRISON.

I always use them. C. C. MILLER.

I would use them as they are.
JAMES HEDDON.

Use them, if not discolored or soiled.
H. R. BOARDMAN.

Put others in. I have tried old ones.
P. H. ELWOOD.

All that are in good condition I would use as they are. L. C. ROOT.

I would use the sections with the old starters in them, if clean. CHAS. F. MUTH.

I should use them, but would alternate in the crates with sections having fresh foundation.
O. O. POPPLETON.

If you use them, warm them up before putting the cases on the hive. They are just as good, if the wax is softened. A. J. COOK.

If the starters are quite large, very hard, and badly daubed with propolis, take them out; otherwise use them next year. E. E. HASTY.

I am in the same boat, and should like to know. It is a big job to cut out several hundred and put in new. I think I shall try both plans. E. FRANCE.

I should use them, if nice and clean, even if all the rest of the fraternity said no. Little of this craze regarding unfinished sections will be heard of ten years from now. G. M. DOOLITTLE.

It may make no difference, but I have always made it a duty to cut them out and put in fresh ones. Such starters seem to dry out so much that I never used them, and can speak only from opinion and not experience. PAUL L. VIALLON.

Well, friends, your replies are just about what I should expect. If the foundation put in the year before is apparently in good order, use it; and I don't know but I would use it even if it were not in very tiptop order. Elwood says, put in others. I am a little surprised at this; but very likely he has had more experience in the matter than any of us. Friend Poppleton's idea of alternating them would, I think, certainly obviate any tendency on the part of the bees to refuse to commence work.

QUESTION NO. 45.—*Is it profitable to use drone foundation in the surplus apartment for either extracted or comb honey?*

No. O. O. POPPLETON.

No. GEO. GRIMM.

Doubtful. W. Z. HUTCHINSON.

None at all. PAUL L. VIALLON.

I think that it is. MRS. L. HARRISON.

I much perfer the worker size.
G. M. DOOLITTLE.

All things considered, no. L. C. ROOT.

Yes; but worker comb is preferable.
H. R. BOARDMAN.

No. There is not an apiarist among ten thousand who wants drone foundation for any purpose.
DADANT & SON.

Worker foundations are generally filled first; and it is my opinion that they are the most profitable to use in the surplus apartment. CHAS. F. MUTH.

No; for with me the queen is sure to go into the surplus if there is drone comb, unless a queen-excluding board is used. DR. A. B. MASON.

For comb honey I think worker comb looks best. I don't think drone comb in the surplus apartment for extracted honey is any detriment.
E. FRANCE.

I think not. Honey in small cells looks best. Possibly if one is to keep combs exclusively for extracting it might pay; but I should prefer all worker combs. A. J. COOK.

I think I wouldn't use it. There are quite a number of reasons that we will not take space to give here. Certainly I would never use it without the queen-excluding honey-board, and I wouldn't use it any way. JAMES HEDDON.

I think I would never use drone foundation anywhere. In sections, drone comb doesn't look as well. For extracting, I would rather have every comb so it *could* be used in the brood-chamber; but if I already had drone combs for extracting, I would not melt them up. C. C. MILLER.

I have had no experience with drone foundation. My idea is, that it does well when the nectar to be put in it is thick; but when, as it often happens, the nectar is very thin, it refuses to stay in, and makes the bees trouble. If this idea is correct it is never wise to give drone foundation for surplus—many bees having to stay at home simply to hold the nectar until it is evaporated enough to stay in the large cells. E. E. HASTY.

Probably not. Drone comb does not look quite as well when sealed. Foreign bee-keepers just now are talking a good deal about a size larger than drone, in which the queen will not breed, and no pollen be stored. The original "Long" foundation was of a size intermediate between drone and worker, and it shut out brood and pollen pretty well. I fear that the bees will not work as well on an unnatural size of cell. It might be well for some of the Hutchinson school to try drone foundation in sections, with the expectation that it might lessen the amount of bee-bread in boxes and the amount of drone comb in the brood-chamber.
P. H. ELWOOD.

And on this question, too, there seems to be a remarkable uniformity of opinion. Friend Hasty's suggestion is indeed novel—that the bees have to stay at home to keep the honey in the cells until it evaporates. This reminds me of the good old lady who wanted her boy to go to the store for some clothespins. It was freezing weather at the time, and he suggested that she might hold the clothes a little while, and then they would *freeze* fast to the line, thus saving the necessity of the pins. Well, friend H., suppose it should happen that the honey ripens faster in the large cells. I would remind friend Elwood that we, years ago, made a test of cells a little larger than drone-cells; but the bees avoided it, evidently having ideas of their own about going beyond certain limits. We also made a good many hundred pounds of foundation of the Long size. Some of our customers thought at the time it was just the thing; but sooner or later they decided they didn't want any more. We have for a good while felt somewhat as the Dadants do—that, when a man ordered a considerable quantity of drone comb, we feared he did not exactly know what he *did* want.

BEE ENTOMOLOGY,

Or Enemies of Bees Among the Insect Tribe.

BEE-KILLING SPIDER.

I BELIEVE that most people enjoy hating the spider, even if not possessed of the senseless dread which is felt by most for these harmless animals. It seems Uncle Samuel is no exception, if we may judge by the condition of the spider sent by Mr. I. Wykoff, Cameron, Pa. The mails left a sorry-looking creature of him; and were it not for his more solid head-thorax I should not be able to diagnose him at all. Spiders are quite different from insects. They have eight legs instead of six; have no transformation; thus a baby-spider, instead of being a grub, maggot, caterpillar, is only a little spider, and, except for size, looks just about like its mother-spider. Again, as all have noticed, the spiders have only two divisions of the body—head-thorax and abdomen, instead of three—head, thorax, and abdomen, as have our bees and other insects. Spiders are also without antennæ, or the horn-like organs so familiar in all insects. Spiders are also without the beautiful compound eyes which we admire so greatly in wasps—at a distance—and in most two-winged flies, or diptera. The spiders have several simple eyes, usually eight, the arrangement of which is much used in classifying this group of animals. The jaws and feet of many spiders are very peculiar, and well worth study by any one curious as to Nature's wonders.

The spider sent me belongs to the genus *Salticus*, or the jumping spiders. These do not spin a web, but hide in some crevice; and when their victim comes nigh they jump and fasten on its back and soon crush or suck its life from its body. Mr. Wykoff says this one kills a bee in less than a minute. It is said, that these spiders, when they jump, always leave a thread, so that, if they miss their prey, they can have a tight rope to aid them in regaining their place of concealment. These are among the most agile and swift of spiders.

I wish Mr. W. would send me four or five of these this spring, by mail. Insects and spiders should not be sent in glass bottles or pasteboard boxes. The heavy mail-pouches are too much for either kind of package. I shall hope to get many insects this summer from bee-keepers in all parts of the country, and I hope they will be sent either in tin or wooden boxes. A very nice box is made by boring with a bit into a small piece of wood. By taking a piece of board four or five inches long, two or three inches wide, and one inch thick, several holes can be bored in the same block. This makes a very nice, cheap, and safe transporting-cage.

Ag'l College, Mich. A. J. COOK.

MYSELF AND MY NEIGHBORS.

Ye blind guides, which strain at a gnat and swallow a camel.—MATT. 23:24.

MY friends, my talk to-day will be principally to Christian people, or, if you choose, to church-members. I do not mean by this that none but church-members are to read this; for I hope to be able to be helpful, especially to those who are not members of any church. I wish especially to impress upon the minds of professors of religion the importance of being careful that they themselves are not stumbling-blocks; that they do not, by their daily deportment, drive away instead of drawing all men to Christ. In the verse before the one which I have chosen for our text, Jesus severely denounces the Pharisees; in fact, he calls them hypocrites, or "actors," as the word means. He says, "Ye pay tithes of mint and anise and cummin, and have omitted the weightier matters of the law, judgment, mercy, and faith." Now, he does not say this matter about the mint, anise, and cummin is wrong or out of place, for he adds, "These ought ye to have done, and not to leave the other undone." Then follows our text, "Ye blind guides which strain at a gnat and swallow a camel," or, as the New Version more clearly renders the passage, "which strain *out* the gnat," etc. Now, dear friends, I feel that I myself am stepping on dangerous ground; and just at this moment I feel that I want to ask your prayers that I may be wise, and tread with care on this dangerous ground where so many have been shipwrecked. I have sometimes thought that Satan has for ages been so accustomed to having the run of things in this line that he feels perfectly at home—so much so that we may start out to rebuke these sins of inconsistency, and nine times out of ten we fall into the same error we were trying to correct in others. I mean, particularly, selecting certain portions of the Bible and giving them undue prominence above other portions. I suppose one reason why it is so easy and natural to do this is that we instinctively avoid any passage in the Bible that strikes directly on our own besetting sins; but we take up with great zeal and energy some passage that hits our neighbor and does not strike us at all. The Pharisees, to whom Jesus was speaking, found it very much easier to comply with ordinances and external forms than to root out the evil in their own hearts, and obey in *spirit* as well as in *letter*. He tells them further along, "Ye make clean the outside of the cup and of the platter, but within they are full of extortion and excess." Again he says, "Ye also outwardly appear righteous unto men, but within ye are full of hypocrisy and iniquity."

Not very long ago a temperance lecturer asked the question, "If all the saloon-keepers in Medina were to die to-night, would the cause of temperance be enhanced?" I do not know that anybody answered the question, but I felt in my heart that it would probably make little or no difference with temperance. The speaker added, "The sad fact we have to face is, that there are right now in your midst plenty of men mean enough to step right into the dead men's shoes, and the saloons would probably all go right along as before, as so on." Now, then, this indicates that the trouble is not with the men who run the saloons. The real root of the evil is the depravity of average humanity; the low state of spirituality, or the lack of Christ in the hearts of men. Killing the saloon-keepers would do no more good than pouring water on the stovepipe while you keep the fire burning in the stove. If you want to get the stovepipe cool, and keep it so, get down into the stove and pour water on the glowing brands. We have had proof of it here in Medina; yes, I may say, thank God, not only in *Medina*, but in *Ohio*, our schools and churches have so enlightened the people that the supply of iniquity that has been welling up constantly to keep the saloons going, or to keep the stovepipe hot, if you choose, has been counteracted or cut off. The demand for intoxicants has *cooled off* so that it is *possible* to enforce our laws. In fact, we are surprised at the feeble resistance which was made when we went about the business in a sensible way. Well, fighting the saloon-keepers alone is not what Jesus meant we should do. Of course, these things need attending to. Outside appearances are a factor in the work. Ordinances and forms are all right, but the work of the heart must go along with them. The time was, perhaps, when there were people who would claim that *baptizing* a man would fit him for heaven without doing any thing else. No doubt the fact that he was willing to *submit* to baptism was a good indication; in fact, we may rejoice to see a bad man get so far; but, my friends, he would make a sad, sad blunder if he thought that this alone was all that was necessary. Now, in the same line we see people going to great lengths and extremes on some particular point of Bible doctrine, ignoring every other point. Men whose lives are bad and inconsistent—in fact, sometimes where they are guilty of breaking many of the commandments, will be so vehement on the matter of intemperance that they pain good people by pushing it forward, in season and out of season. In fact, I have thought many times that the cause of temperance was greatly hindered because of the inconsistent lives of such individuals. We must take the Bible as a *whole*, and God's commands as a whole; and he who deludes himself with the belief that he can make the world believe that he is a Christian simply because he is vehement in the advocacy of temperance as regards liquor, and yet leaves these other matters as they are, makes a grievous mistake.

Since what I said in reply to Mrs. Chaddock in regard to baptism, many kind letters have been sent in. Most of them are in a kind spirit; yet some of them, I can not but feel, come under the condemnation of the words of our text. May be I have been a little loose in my treatment of these subjects; but if I have, I am glad that I have so many good kind friends who are not only willing but able to set me right. Among the many kind letters received, the following is written in such an excellent Christian spirit that I have thought best to give place to it here. May God give us all the grace that seems to dwell in the heart of brother Whitney!

Dear Brother Root:—I have been pleased and edified many times, in reading your articles in GLEANINGS, and wish you much success in your good work. Your earnest and liberal efforts to lessen the use of tobacco are doing much good, for which we have great reason to be thankful. Having been some sixty years trying to serve our Lord Christ, I am happy to find a comrade so efficient in the good cause. You are right in urging us to consult the will of God, and obey it in all things. Doing that, we can safely and quietly leave all things to his disposal, assured that all shall be well. But my object in the present writing is to call your attention to one instance in which you do not seem to be as clear as usual, and to try to help you out a little in the Master's work.

In GLEANINGS, pages 18—20, we have a friendly interchange of religious views between Mrs. Chaddock and yourself. On her part she represents fairly the form of religious faith and worship in which (notwithstanding her disclaimer) it is evident that her education began, many years before she was born. I suppose your numerous cares and intense activity in practical affairs have hindered you from giving so much attention to the subjects introduced as their importance really demands. Now, I would not have you think that I am some clergyman or professor of theology. I am only a plain mechanic, with very little chance for education, and have worked hard for a living. But in the intervals of work I have studied religion; and I thinking, perhaps, I can help you a little about the theory of it, as you do me about the practice.

The morality of the gospel is certainly the purest and best that can be found on earth; and it is urged upon us with the highest conceivable sanctions. But its morality is not, after all, its most peculiar and distinctive characteristic. Other religions claim and teach more or less of the same excellence. There are plenty of religious systems that would make a man stop swearing and beating his wife, and yet may leave him with such a spirit of selfishness that, if he should be admitted to the New Jerusalem, the city would need an extra police force to protect the pavement of its streets. They may go much further than this, and teach him to be honest in his dealings, and to be as conscientious and devout as the Pharisee in Luke 18:11, and yet not be a Christian. The doctrine of Christ is, "Ye must be born again." That is, man is so utterly lost and ruined by sin that no reformation or good works or religious rites or offerings or services can save him. Already dead in sin, he must perish unless he shall receive a new divine life from God. This doctrine is not readily received by men, and they have devised many ways to discredit and evade it. All false religions and all corrupt forms of what is called Christianity occupy themselves with schemes to set it aside and substitute something more acceptable, and many are ready to follow them. Our Lord knew all this, and more. He knew how liable words are to change their meaning with the different opinions and customs of men, and how liable a disagreeable doctrine would be to be misunderstood and modified to suit the popular opinion, and so he did all that could be done to guard against such a tendency. He repeated the statement on many occasions and in a variety of forms in his own words, and in the words of his apostles; and in addition to that he commanded that each convert should submit to a certain rite, or ordinance, which should represent by action that he was dead and buried, and raised to a new life—an act that could not well be misunderstood, nor change its meaning as words do, but should in all times and places and tongues declare, "The Christian is one who was dead and is alive again." I know full well that many men reject the doctrine, and so reject or change the ordinance; and that some do the latter, and still hold the doctrine, but that is their affair not mine. I am speaking only to our text, "Fear God and keep his commandments;" and to enable you the more readily too see whether I have faithfully declared his commandments on the subject of baptism I will ask you to read Christ's commission in the last chapter of Matthew and Mark, also the book of Acts, chapters 2, 8, 9, 10, 15, 16, 18, 22, 24; Romans 6 : 4; or, by the use of a concordance, examine each reference by itself. B. WHITNEY.

Rahway, N. J., Jan. 14, 1888.

There is not very much danger that any human being will go to too great an extreme in keeping the first commandment. God should be first and foremost; and to him, and him only, are we to bow in reverence. I do believe it is possible, however, for one to dwell on this first commandment to such an extent as to overlook or forget other duties and responsibilities. I knew one individual who would neglect his work, and go off and pray, when I think he would have honored Christ more by doing his work faithfully and well, with his whole energy, leaving his devotions, as a rule, for morning or evening or noon time.

In the same way, perhaps no one ever went to too great a length in forbearing to take God's name in vain, although I have known some young men who took great *pride* in the fact that they never used an oath in their lives. In fact, they paraded this virtue whenever opportunity offered. So you see that even in this matter reason and common sense should guide us. We might be tempted to think, in the same line, that no one ever kept the Sabbath day too holy. But most of us have seen instances where one had a foolish regard for the Sabbath. Some years ago a small cyclone blew down the trees and fences so that people had hard work to get home from church. One of our deacons stopped his carriage, pulled off his coat, and pulled the cross-cut saw until they could get the tree out of the way so the buggy could pass. When they got through they found the fences blown down to such an extent that stock was roaming at large through the grain and crops. He did not put on his coat, but worked hard to put up the fences and in putting the stock into stables or pens all that Sunday afternoon. Well, if it was right in that case to work on Sunday to save property, why is it not right to get in grain when losses just as great would happen by letting it stay out exposed to the storm? You see, friends, there is chance to exercise judgment and intelligence as well as conscience in this matter. If we should show more zeal in observing the letter rather than the spirit of the law, we might in this way dishonor Christ, and cause our brothers to stumble. We may ask, that, where opinions differ so much, how shall we avoid hurting the feelings of some? Well, it may be difficult; but I think a good deal may be accomplished by talking over these matters. Ask your pastor, the deacons, and good Christian people what they think in regard to certain cases, and try to have some sort of agreement laid down beforehand for emergencies. A father and mother should be very careful about exhibiting differences of opinion or disagreements before the children; so should Christ's people beware how they dispute, or have controversy before the world. The spectacle of large bodies of Christian people disagreeing in regard to the proper day to be observed as a day of rest, it seems to me, is a sad spectacle, and, I fear, may be a serious stumbling-block. Are they not straining out *gnats?*

At first thought one might think that no one could go to too great lengths in honoring his father or mother; yet I have heard people urge, as an excuse for absenting themselves from public worship almost entirely, that they felt it a duty to stay with the old people. I think there are extremes here.

"Thou shalt not kill," the Bible says; and yet a few months ago, when I gave it as my opinion that it might be a Christian act to shoot down the burglar who makes his way into our dwelling at midnight, a good brother took me to task almost fiercely. He said the Bible command was, "Thou shalt not kill," and that we have no right to kill anybody under *any circumstances.* I might have urged that the New Version changes it to "Thou shalt do no murder;" but he would probably declare emphatically that killing of any kind is murder, therefore I felt it was hopeless to try to reason with him. I think that Christian people may hinder Christ's cause in the hearts of men by taking positions like these. Some say they must stand by their honest convictions; but I don't believe I would admit even this, as they put it. Apply the same rule to that, which I have just given above in regard to working on Sunday. Present the matter at your prayer-meeting; and if the great majority of the good men and women, including the pastor and deacons, are against you, I think it is a Christian duty to give way. If the church of Christ is not a unit on such matters, of what avail would it be? "United we stand, divided we fall."

In regard to the seventh commandment, I do not know that I ever heard of any individual laying too much stress on this. In fact, Christ himself laid a tremendous emphasis on it when he said, we should not only keep it in deed, but in very thought. May God help us to live up to all his commands, not only in deed, but in very *thought.* See Matthew 5: 28.

"Thou shalt not steal."

Here, too, there is not very much danger of anybody carrying the command to excess, especially if we define the word "steal" as it is defined in the dictionary. Of course, this would not include forbidding one to help himself to anybody's property, to save life. A boy once drank some bedbug poison, thinking it was only vinegar. His mother ran over to the neighbor's after some milk, and the folks were away. She kicked the door down, tore the house upside down for milk, ran home, and made the boy drink the milk until he begged piteously not to be made to drink more. She, however, kept him at it until he vomited up not only the milk, but also the corrosive sublimate dissolved in the vinegar. She not only took property without leave, but she was guilty of housebreaking; but woe betide you, my friend, if you should ever be tempted to construe God's commandments or the teachings of Christ into any thing that would forbid your doing the same under like circumstances. Let all of the commandments be kept in the spirit of *enlightened reason* and *common sense.*

I am often very greatly pained, not only in the talk I hear, but through letters that are written to me, by hearing the expression, "He lies;" "He is a liar;" "It is a lie." In almost every case where these words are used, I feel like taking the user by the shoulders and shaking him. "Look here, my friend; you have no right to use such language. It is not true." I am answered, perhaps, "But it is true. He tells what is not so."

Now, very likely a great many of my readers will insist that, when a man tells what is not so, he lies. But, my friend, you are making a mistake. Even if a man tells a thing that he *knows* is not true, it does not follow that he is a liar, or that the thing that he tells is a lie. Go to your dictionaries once more. I *do* agree with you, that one of the saddest things to contemplate in this world of ours is the *untruth* that passes current; there are few things that I know of that would help us more in our slow plodding from earth to heaven than a more careful observance of this very commandment—"Thou shalt not bear false witness against thy neighbor." As I contemplate the matter, my little prayer wells up again, "Lord help! Lord, help *me* to be more careful about bearing false witness against my neighbor." I am really afraid, my dear friends, that in some way or other I break this commandment every day of my life, and I came very near saying almost every hour of my life. The world gives me credit for being truthful and honest; people want to come and work for me because they think me truthful and honest, until I am obliged to put a notice in the papers every little while, "No more help wanted." But I tell you, there is an unexplored region in this matter of truth and honesty that no human being has ever entered; but notwithstanding these strong expressions there is such a thing as carrying this matter to foolish extremes. People every little while insist as an excuse for the commission of grave wrongs, that "it is the truth," imagining that the truth should always be told. People's feelings are hurt by truths bluntly and coarsely expressed; yes, those who had started heavenward and were almost ready to take the proffered hand of Christ Jesus, and follow him, have stumbled and been set back by some, perhaps a professor of religion, who foolishly and indiscreetly told the truth. May God help us to use sanctified common sense in keeping *this* commandment.

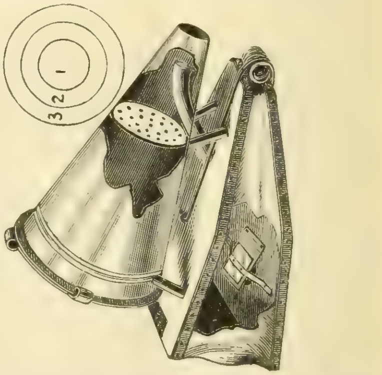
And now, friends, we approach the last of the ten commandments; and at first thought one might say the command in regard to covetousness could not be carried to an extreme; yet as we look at dissatisfied humanity about us, who has not wished that a certain friend were a little more *selfish?* We occasionally see a boy or girl who lets every thing slip through the fingers. They lend their money to everybody who talks fair, and seem to have no sort of an idea of taking proper care of "No. 1." Again, we see people who are so listless and inactive that they have to be cared for. A healthy desire in their hearts to possess such things as their neighbors have would be the making of them. You see that almost every one of the *sins* these commandments strike at, may have an element of good in it if sanctified by Christ's love, and held in control by clear reason and common sense. What would a human being be good for who had no temptations whatever? He would soon find a lodging-place in the infirmary. And I have sometimes been tempted to think that he who sees only one evil—one sin or one crime in this world, and puts all his energies in this one direction, to the disregard of all other sins, is almost as useless as he who has no temptation. May God help us all to so live that it may never be said of us, *we* have been through these busy lives "straining out *gnats* and SWALLOWING CAMELS!"

OUR OWN APIARY.

CONDUCTED BY ERNEST R. ROOT.

IMPROVEMENTS IN THE CLARK SMOKER.

SOME time ago, you will remember, we stated that we expected to make some changes in the Clark smoker. Just what these changes should be, was not then definitely settled. That the smoker needed some alterations, was plainly evident. The principal defects were, the clogging of the blast-tube and of the valve —the latter wheezing when in this condition. To overcome this difficulty, one or two (among whom was our friend Dr. Miller) recommended making the blast-tube removable, so that, when it became clogged, it could be taken out, cleaned, and returned. It was also suggested, that the valve be likewise made removable, so that the sooty accumulations could be the more readily cleaned from the surfaces which come in contact. For a while we thought this was the most feasible means of obviating the difficulties. The more we experimented, however, the more we became convinced that the smokers so constructed could not be made at the price we are now selling them; and, furthermore, they would be rickety at best. To make a smoker with the blast-tube removable would require castings, screws, buttons, and what not. We finally came to the conclusion that the blast-tube (the tube inside of the fire-box) as we have made it for several years back was too small, and that if enlarged would not fill up so soon and would likewise clean easier. Judging from the few trials we were able to make late last fall and early this spring, the large blast-tube is a great improvement. Such a smoker was sent to Dr. Miller, and in a letter he expressed himself as believing that enlarging the tube was better than making the same removable. After we had made the change, we remembered that the inventor of the Clark long ago recommended that the size of the tube be increased; but for some reason or other the matter was dropped for the time. In order that the reader may more clearly see what enlargement we have made, we have had the following engraving made.



THE NEW CLARK SMOKER, WITH THE ENLARGED BLAST-TUBE AND LOOSE VALVE.

At the top of the picture you will notice three circles. Circle 1, the innermost, represents the end of the blast-tube we formerly used. Circle 2 represents the size of the muzzle end of the one now in use. Circle 3 shows the size of the breech end of Fig. 2.

You will see that, although this large blast-tube may fill up with sooty accumulations in time, it will take much longer to do it than with the small tube. It is impossible to tell just how much longer, because we have not had an opportunity to test it fairly. Those who purchased the old Clark smokers will remember that, when they were new, nothing better could be expected. After they had been in use for a month or so, the little tube did not work so nicely. On the contrary, the large tube will take some time to get filled up, even to the size of the old blast-tube; and, consequently, will not require so frequent raking out to work freely.

Besides the alteration in the blast-tube, we have made a change in the size of the perforations in the grate. We found that, in using fine fuel, such as sawdust, small pieces of rotten wood, etc., burnt embers and small chunks of the fuel would occasionally drop through and shoot out of the nozzle. Last summer we found it a decided advantage to have the size of the perforations decreased, and use more of them. The size of the holes as we used to make them was ⅜; it is now scant ¼ inch.

Another change consists in enlarging slightly the capacity of the bellows. by increasing its length at its small end. By referring to the engraving you will see that the spiral of the spring reaches out just as far as the fire-box, so if you are careless enough to drop your smoker-nozzle downward the spring will receive all the concussion. For a like reason this will also be quite an advantage in shipping by mail and express.

Another change consists in so constructing the valve that it will work loosely. We used to make them so that they fitted tight to the 1½-inch auger-hole on the inside of the bellows. As the air to supply the bellows could pass through the blast-tube (carrying along more or less smoke) about as readily as it could through the valve, the consequence was that the inside of the bellows became covered with soot, especially the surfaces of contact, in the valve. As long as the smoke was sucked into the bellows because of the close working of the valve, just so long would the latter become clogged and wheezy. To solve the difficulty, it occurred to us that the valve should work so easily that the air could pass into the bellows easier through the proper opening than by the blast-tube. In the engraving you will see that the leather of the valve is hinged so loosely that it can drop back half an inch from the wood. We are sure it is an improvement to have the valve made thus, and I will tell you why. We have an old smoker in our house apiary, which has been in use every season for six or seven years, and it has outlasted all others. The boys were quite partial to this smoker, even if it was an old thing, because "it didn't fill up quite so quick." It was made exactly the same as the other smokers, only the valve, by some clumsy handling, was broken loose, so as to be "floppy," as they said. Every time the bellows would work, the valve would drop back from the board half an inch, or perhaps three-quarters. It worked so easily, in fact, that little if any smoke sucked back through the blast-tube, and, as a consequence, it took a good while for the latter to become clogged, and therefore this smoker usually had the cleanest blast-tube.

In addition to enlarging the blast-tube, we have enlarged the nozzle of the fire-box itself. We have made a complete set of new dies, also a set of machinery for turning out the smoker as above. We do not, however, make any extra charge, and the smoker will be sold at the same price as before. Just one thing more on this subject: I am not going to say that a smoker, made as above, *will* remedy all the defects of the former smoker beyond any question or doubt; but from what experience I have had already, I confidentlly *expect* it will to a very large extent.

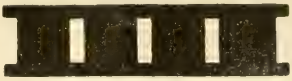
OPEN-SIDE SECTIONS AT THE SAME PRICE.

We have just built some new automatic machinery for turning out sections with openings all round, or perhaps, rather, we have reconstructed our automatic machine for the purpose set forth. We are now enabled to turn out sections open all around, or open at top and bottom only, or closed top, as they call them, all at a uniform price per thousand as it is in our catalogue. We have therefore removed one of the objections to open-side sections; namely, that they cost more. Whatever the merits of these sections are, we are not prepared to say just now, from experience; but as there has been considerable talk about them of late, we thought best to put them out at the same price, so bee-keepers can try them if they choose. We have made a slight alteration in the size of the openings for the bees, so that they can be used in the T super with common tin separators.

Oliver Foster says it is desirable to have both side and end compression on open-side sections; the object of which is to close the interstices, or at least to reduce them to a minimum space. We can effect the side compression in the T super by leaving one row of sections, and in its place putting an inch board, or follower, the same to be crowded against the sections by means of wedges, as illustrated and described on page 219, for last year. With T tins, however, end compression by contact can not be accomplished, because the upright of the T will space the ends of the sections at least $\frac{1}{16}$ of an inch apart.

PERFORATED WOODEN SEPARATORS, SPECIALLY ADAPTED FOR THE OPEN-SIDE SECTIONS.

Sections open all around, in order to work to the best advantage ought to have separators perforated with transverse slots, these slots to come directly opposite the side opening in the sections. One objection to using tin separators with transverse slots is, that it makes them too expensive; we have therefore taken our common wood separators and perforated them with transverse slots, something as shown in the rude cut below, except that the slots are round at the end, instead of being square.



SEPARATOR, TO BE USED WITH OPEN-SIDE SECTIONS.

As our dies for making these separators were just completed, we have not had opportunity for having an exact engraving made; but the above shows the idea. These separators are very unique; and when you first see them, you will wonder how we are able to make them. We find we can furnish them at the very low price of 75 cts. per 100, or $6.00 per 1000. If you desire the same of IC tin, we shall have to charge you $2.00 per 100, or $18.00 per 1000. We think, however, the wooden separators with transverse slots as described, will be preferable.

SPECIAL NOTICES.

OUR SEED-CATALOGUE FOR MARCH.

This has several important changes, and many reductions in price of seeds since our January catalogue. If you would like it, drop us a postal.

THE NEW SEEDS.

The "Grand Rapids" lettuce is now selling on the streets of Medina at 30 cts. a pound; and as many of the heads weigh a pound each, we get 30 cts. for a plant. We have plenty of seed left for those who want it, at the prices heretofore given. The stock seed of H. A. March's Jersey Wakefield cabbage is almost gone. We can, however, furnish any quantity of March's Jersey Wakefield at the prices given in our seed-catalogue; but the latter is not *stock* seed.

MAPLE SUGAR.

On account of the very bad sugar weather during March, the demand for maple sugar has been greater than the supply, and at present writing every bit of sugar we can buy is used to fill orders as fast as we can get hold of it. I believe the quality is, however, better than that of any year heretofore. Very likely Prof. Cook's book on maple-sugar making has had something to do with this. Our prices are now 9, 10, and 11 cents; but it is not likely that we shall be able to fill more than a small part of the orders for the nine-cent grade, for the reason mentioned.

EARLY POTATOES.

One of our neighbors, a pupil of Terry's, raised a great crop of "Early Vermont" potatoes last year. I have purchased of him 130 bushels, which I offer for sale at $1.50 per bushel; 50 cents a peck, or one pound by mail, postpaid, for 25 cents. The Early Vermont is a seedling of the Early Rose. Our neighbor who raised them says they are just as good in every respect as the Early Rose, and a great deal more prolific. For table use at this season of the year, they are the nicest-eating potato we have got hold of in a very long while.

GLEANINGS IN BEE CULTURE.
Published Semi-Monthly.

A. I. ROOT,
EDITOR AND PUBLISHER,
MEDINA, OHIO.

TERMS: $1.00 PER YEAR, POSTPAID.

For Clubbing Rates, See First Page of Reading Matter.

MEDINA, APR. 1, 1888.

Blessed is he that cometh in the name of the Lord.—Ps. 118:26.

WE now have an actual bona-fide subscription-list of 8054. Our list still continues to grow from month to month, as you will notice.

NOTHING TO DO.

IF there is any month in the year when the above expression is inexcusable, it is in the month of April. If you can not do any better, make garden. If you have only a few square rods, go to raising plants and it will keep you and your children busy for weeks. God's rain and sunshine are free to all.

IN HONOR PREFERRING ONE ANOTHER.

ALMOST every spring I am pained to notice that some of our finest and best seed-catalogues persist in claiming not only that *their* seeds are ever so much better than any other, but that the folks who buy of other parties make utter failures, while those who buy of this one special house make a great success, no matter how bad the soil or other circumstances. Sometimes we see pictures illustrating the magnificent crops Mr. So and So's seeds always give; but if you buy anywhere else—failure. Now, friends, this is not a good way to do. It is unworthy of the spirit and progress of the times. The man who calls his neighbor a knave and a fool is not a good man.

THE AMERICAN BEE JOURNAL.

VERY often, in meeting bee-friends, and a good many times visitors at our establishment, when the subject of our bee-journal comes up, some of them, with a little embarrassment, acknowledge that they have been taking the *A. B. J.* instead of GLEANINGS; and sometimes they seem to think that may be I shall feel displeased when I am told this. Why, bless you, friends, if I should let any such feeling get possession of me I should be unworthy of my position. It affords me just as much pleasure to take a brother by the hand who has taken the *A. B. J.* for years past—yes, and contributed to its columns—as if it were the other way. In fact, I am more likely to get original ideas, thoughts, and suggestions from him. The *A. B. J.* is an honor to our industry. It comes weekly, which is more than GLEANINGS ever expects to do, and it costs only a dollar a year. Brother Newman has been standing faithfully at his post for many long years. Not a single number has failed or even been behindhand. Many of the best friends of GLEANINGS are among the contributors to the *A. B. J.* Now, if we can not be brothers, all the same, even though we do take different journals, *we* are not up to the spirit and progress of the times.

SENDING THE SAME COMMUNICATION TO DIFFERENT BEE-JOURNALS.

I FEAR this is getting to be somewhat the fashion of late; but I am sure it is not a good fashion. Our progressive bee-men expect to take more than one, and oftentimes all of the bee-journals. Well, how does such a one feel to find the same article in both journals—or, if you choose, the same article slightly altered in wording? I believe the editors of all the journals have a great surplus of good original articles; and while it is easily within our power to give you something every time which you have not or will not see anywhere else until it is copied, is it not the best way? The editors of the different bee-journals have recently, however, made somewhat of an exception to this rule in favor of father Langstroth; and we have been in the habit of paying him just as much for his communications as if they had not been sent to some other journal also; but I think we had better let the matter stop with friend Langstroth, and not have it go out as a precedent. This, of course, has no reference to articles copied from other journals, where the journal that first gave the article, and paid the author for it, has due and proper credit. I just want to add to the above, by way of a wee bit of postscript, that perhaps it would promote this brotherly feeling to take *both* of the journals.

THE COTTAGER'S (BRITISH) BEE-JOURNAL.

THE publishers of the weekly *British Bee-Journal*, in view of the fact that the price of the weekly at 10 shillings 10 pence (or $2.62) is beyond the reach of the poorer classes, decided to issue the *British Bee-Keeper's Adviser and Cottage Journal*. This is issued concurrently with the weekly, once a month. The price is one shilling sixpence, or 36 cts., a year. The first copy is now before us, and we feel quite sure that it will meet the expectations of the publishers. It has for its editor none other than our good friend Thomas William Cowan.

CHARITY THINKETH NO EVIL.

ON page 222 allusion is made to a brother who took the tobacco pledge and got a smoker, but was afterward seen smoking. Investigation shows, however, that he paid for his smoker, and thereby secured an honorable release, more than a year ago. Now, I want to beg his pardon that, in my lack of charity, it did not occur to me that this might be the case; and friend Fox also seems to have been a little hasty in concluding that the brother was lacking in conscience and principle. Now, let us all take a lesson and start out again with the determination to be slow about *thinking* evil.

IN DEAD EARNEST.

THERE is a man in Shenandoah, Page Co., Iowa, who was editor of a political paper; and besides that, he was in politics enough to get a full glimpse, it would seem, of the difference between a worldly politician and a follower of Christ. He woke up one morning, however, so suddenly that his friends were all concerned about him. He decided to leave all and follow Christ, no matter what consequences followed. The first thing he did was to change the name of his paper and call it the *Firebrand*. Of course, his advertising patrons dropped off, so he fills the space with Scripture texts, and trusts the Lord to help him keep the paper going. Here is a short editorial, as a sample of what the paper contains. Is it in a line with politics?

> Jesus said, " Blessed are the peace-makers: for they shall be called the children of God." You should understand that any who will tell you something that will cause you to lose confidence in your neighbor or brethren (or that may be a cause of trouble between you), are not of this number. They are your enemy, and an enemy of peace. As a Christian you should kindly inform any such characters that you will not hear evil spoken of any of your brethren or neighbors, and stop it short off. Otherwise you are not among the peace-makers, but are disturbers of the peace. Are you a peace-maker?

If you want to help him, send to C. S. Hanley, as above, for a sample copy, or, better still, send him a dollar for the paper for one year. Friend Hasty commends the undertaking; and after having looked over a single copy of the paper I think brother Hanley is in the strait and narrow path, and no mistake.

" LOOK OUT FOR THE ENGINE WHEN THE BELL RINGS."

ON page 763 our friend W. F. Clarke spoke of a great forthcoming invention; and a good many jokes have been cracked at his expense because of the slowness with which said locomotive has got up steam. By the last issue of the *Canadian Bee Journal*, however, we find that steam is up, and the locomotive has started. One good thing has certainly been accomplished: We have got an unusually long editorial, presumably from friend Jones himself, illustrated by some nice pictures. Perhaps, now, we are permature in offering criticisms; but I am sure the new arrangement will be the means of having more streaks of propolis on the sections, to be scraped off, than we have heretofore had; and I am not sure, either, that the new plan has lessened the number of " chicken fixins." The new idea, however, is quite ingenious, and it offers valuable suggestions, and furnishes food for thought. Had I gotten up the whole arrangement, I am not sure but that I too should have imagined that it was going to revolutionize fixtures for comb honey. I want to say, in closing, however, that, from what experience I have had with side-opening crates and supers, I do not believe anybody will ever want them a great while. Don't go to work and make a great many of them until you have tried them one season.

ORDERING HEAVY SHIPMENTS BY EXPRESS.

FRIEND E. Ervine, of Phœnix, Arizona, has just sent us an express order for hive stuff in the flat, etc. Now, while the entire shipment is worth only $15.90, the express charges alone would amount to $76.00. It is true, his directions read, " Please ship the following goods by EXPRESS *immediately*." Now, the point in question is, does friend E. know the express charges are going to be nearly *five times* the value of the goods? and is he a man who is both willing and able to pay for such a blunder if it is a blunder? We find from our ledgers that he is a good customer, and he has always been up with his promises. We also find him quoted well by the commercial reporters. Had he simply added one line to his order, something like this, " I know the express charges will be awful, but I must have the goods at once," it would have been plain sailing. As it was, we decided to risk the delay and expense of a telegram before filling the order. The telegram cost $2.50, and the goods were held at the express office for 36 hours. Finally comes the reply: " Follow the directions which I gave in the order." Perhaps many of you will say that it is our business to obey orders; and we might do so, were it not for sad experiences in the line of *obeying orders*, no matter what they are. Sometimes the party who orders goods in this way could not raise the money to pay the charges, to save him, and then we have to stand it all ourselves. At other times we get the most hearty thanks for having used our judgment instead of following directions, and *sometimes* we get a fearful blowing-up for not doing exactly as we were bidden. Well, the moral to this, good friends, is, when you know the orders you give are going to necessitate express charges a good deal more than the value of the goods, please say so briefly. Just indicate to us that you have had experience in such matters, and know what you are doing, and I assure you we will jump with alacrity, the whole of us, to get just what you want, right at your door, at the earliest possible moment. In fact, we like the fun of sending such orders; but we hate to get a lot of abuse, and a big bill of expense on our hands, as a reward for obeying orders strictly to the letter. Ernest suggests, as a remedy, ordering early by freight; but we do not always know beforehand what we are going to need. I suppose friend Ervine will tell us pretty soon about some wonderful honey-flow that came suddenly in the neighborhood of Phœnix, Arizona.

GRAVENHORST'S BEE-BOOK.

THE crowded condition of our columns has till now prevented our giving this work such a notice as its merits demand. It contains 280 pages, 10 x 5½ inches, printed on new type and on the best of paper, hence the letter-press is of the very best. The cuts are remarkably fine, and show a painstaking care and fidelity that is astonishing. The frontispiece represents friend G.'s bee-yard. Among the portraits given we notice that of our old friend L. L. Langstroth, Weygandt, Dzierzon, Kanitz, Schonfeld, Hruschka (the inventor of the extractor), Butlerow, and others. These are very fine, for the Germans excel the world on fine portrait wood engraving. Although the general management of bees as laid down in this book is peculiar to Germany, we can heartily recommend it to all who can read and understand the German language. The price is not stated, but can be obtained of C. J. H. Gravenhorst., Wilsnack, Germany.

A SPANISH BEE-JOURNAL.

No better evidence of the spread of modern bee culture over the world has lately reached us than a little journal published in Mahon, Balearic Islands, east of Spain, entitled *Revista Apicola* (Apicultural Review). It is edited by Francisco F. Andreu, and is thoroughly abreast with the latest improvements. Mr. Andreu has just been traveling through France and England, and has adopted the system most prevalent in the latter country. The large yields per colony made in England seem to astonish Mr. Andreu; but we seem to think his astonishment will increase when he learns the large yields made by Edwin France, for instance, in hundreds of colonies. He speaks of apiculture in France as being in a very backward state. He says that in the garden of Acclimitization, in Paris, the old box hives are shown as representative of apiculture in France to-day. The journal has 8 pages, and is published at a nominal price which does not seem to be stated.

NO MORE HELP WANTED.

We are obliged to put a notice like the above in our county paper every little while; and with the number that are wanting to come from a distance to Medina to work for us, I do not know but I shall have to keep such a notice in GLEANINGS. I should be very glad indeed, dear friends, to furnish employment if I could; but the truth is, I can not possibly find work for more than a small part of those right in our own town. I appreciate the compliment you pay me in wanting to come here; and I believe it is indeed true, that we have a pleasant place to work, and that we have succeeded in a remarkable degree in making work a pleasant pastime; but the same thing may be done on almost any spot on the face of the earth, providing you take Christ Jesus along with you to that spot; and whether you work or not, or whatsoever you do, do it all for his honor and glory. You do not need to come to Medina at all. If you want a more detailed explanation of what I mean, I must refer you to the book I have been writing, on this very subject, for the past two or three years.

CLEANING ALSIKE CLOVER-SEED.

ANOTHER reason besides the one given, why we can not sell alsike as low as it is sometimes advertised, is, that nearly all we handle is re-cleaned before we send it out. We have the best clover-cleaner known, and this runs by the power of our big engine. By this means we get a steady uniform blast. The different sieves have a steady motion, whereas by hand sometimes good seed is jerked over with the waste, and at other times the bad seed gets over with the good. Where the mill is run by power, we can also afford to take a great deal of time in the cleaning process. The clover-seed is put into a large hopper in an upper room. The mill is set so as to take only a small stream of clover-seed at a time; and as it works for nothing and boards itself (which is not true of the average hired man) we can go off and leave it and let it take its own time. If anybody can by any process send out any cleaner clover-seed than we do, we should like to know it.

THE DEATH OF MRS. TUPPER.

We note by the *Prairie Farmer*, that Mrs. Ellen S. Tupper, well known to our older readers, died suddenly, March 12, at El Paso, Texas, while she was visiting her daughter. At one time Mrs. Tupper was considered not only as a standard authority on almost all questions pertaining to bee culture, but she was also remarkably successful as a honey-producer. She finally went into the supply-business in company with a Mrs. Savery, under the name of the Italian Bee Company, at Des Moines, Ia.; but in consequence of financial troubles and overwork it is said she became partially deranged, since which time we have heard little or nothing from her.

SPOILING THE MARKET.

A GREAT deal has been said at our conventions and through our journals in regard to offering small lots of honey below the price, and thus breaking or spoiling the market price for honey. A great many times we have been told that this is not the case with the great staples; that wheat, corn, potatoes, and such commodities, bring what they are worth. I think, friends, this is a mistake. Take clover-seed, for instance. We have been advertising alsike at $7.50 per bushel; and as this price is below that of many of the large seedsmen, we thought it was a very fair rate. A few days ago, however, a friend who had ordered a bushel or two wrote us, countermanding his order, saying he thought when the order was made, A. I. Root could be trusted to furnish goods at what they are worth, without watching, or something to that effect, and asked how it was that it was now advertised at $6.25 in the *Ohio Farmer*, while we kept asking and taking $7.50. I looked up the advertisement, and immediately wrote to the advertiser, asking him how much alsike he had at $6.25, and what he would take for his whole stock. He replied that his three-line advertisement in the *Farmer* had taken it all, or nearly all, and he would probably have to disappoint many. Now, I do not mean to complain because this man advertised it at $6.25. It was his privilege; but is it our duty to put a price on, say, 100 bushels or more, down to $6.25 (regardless of what it cost us) because this man decided to get rid of a few bushels in the above way? Surely not. Another thing: Whoever sells alsike must furnish a bag to put it in, and a good stout one too, or he may have loss in transit to make good. There is one good moral to this matter, however; that is, subscribe for the agricultural papers—a good lot of them. Read them through, advertisements and all; and when you see something advertised at a low price that you want, just "go for it." It makes things lively to have people on the alert to catch up every good offer like this that is made. It makes it lively for the producer, and lively for the editor to have his paper filled with lots of offers, and it makes it lively for the transportation companies, etc. But, dear friends, before you put an advertisement like the above in such a paper as the *Ohio Farmer*, be sure you have got a good lot on hand to back up your promise.

ITALIAN BEES AND QUEENS

Tested queen, $1.75; untested, $1.25; bees per lb., $1.00; frames of brood, 50c each; 3-frame nucleus, containing $2\frac{1}{2}$ lbs. bees, 2 L. frames of brood and tested queen, $4.50. With untested queen, $4.00. Prices are for April and May; mismated queens, 50c.

7 9d **MISS A. M. TAYLOR,**
Mulberry Grove, Bond Co., Ill. Box 77.

LEAHY'S ∴ CATALOGUE

of Hives, Smokers, Foundation, Queens and Bees. My new Comb Guide. Sample 5 cts.

Catalogue free. Our motto, "Good goods and Low Prices."

R. B. LEAHY,
7d **Higginsville, Mo., Box 11.**

PURE ITALIAN BEES FOR SALE.

Full colony in A. I. Root's Simp. hive $6.00. Two-frame nuclei $3.00. Three-frame $3.50. Each nucleus and full colony to contain a tested queen and plenty of bees and brood, all on wired L. frames, combs drawn from fdn. Hives new, every thing first-class. To be shipped in May. Safe arrival guaranteed. I shall do by all as I would be done by. Address

N. A. KNAPP,
7-10db **Rochester, Lorain Co., O.**

THE BEE-KEEPERS'

REVIEW!

for Feb. is now out. (It has been delayed by the serious illness of its editor.) The special topic of this number is "Temperature," as applied to bee-repositories. So much information upon this topic has probably never before been gathered into so small a space. The treatment is exhaustive, and it would seem that nothing more need be said upon this subject.

Among the contributors to this number are such men as R. L. Taylor, James Heddon, H. R. Boardman, F. Boomhower, T. F. Bingham, J. H. Martin, J. A. Buchanan, and C. C. Miller. Several pages are devoted to editorials upon a variety of live topics. There are also choice extracts from the writings of Prof. Cook, C. W. Dayton, C. C. Miller, and others.

A detailed list of contents will not be published, as a copy will be cheerfully sent to all who ask for it. Price of the REVIEW, 50c a year.

THE PRODUCTION OF COMB HONEY.

A neat little book of 45 pages; price 25 cts. The REVIEW and this book for 65 cts. Stamps taken, either U. S. or Canadian. Address

W. Z. HUTCHINSON,
10tfdb **Flint, Mich.**

"FABLES AND ALLEGORIES."

Much to my surprise, we have sold, during the last year, over sixty of these beautiful and valuable books. Although at the time I considered the book well worth $2.00, I didn't suppose there were many who would want to pay that price for a book of that character. When we take into consideration, however, that it is not only about as handsome a book as can be found in our bookstores, externally and internally, but that is also a book in which godliness and purity shine forth from every page, it is perhaps not so very surprising. The book is not, in one sense, a religious book, for the principles are taught indirectly, in the form of a little story, or fable, and sometimes the reader does not see at once the application; but when it bursts upon him he feels a spirit of thankfulness for having been taught perhaps the very lesson he needs, by way of a sort of parable. The book contains 512 pages and 350 engravings. Many of the latter are some of the finest engravings that are to be found in modern print. The author of this work, Mr. Charles Foster, went to his heavenly rest during the past year; but it seems to me that his book will stand, much as the Pilgrim's Progress does, to help humanity through ages to come. Our new stock is even nicer than the last for they are in gilt binding; but the price will remain the same; viz., $2.00 each; two for $3.50, three for $1.65 each; five or more, $1.60 each. If wanted by mail, you will have to send 32 cts. extra, as the book is so very large and heavy. We can send it for five new names for GLEANINGS, you paying postage.

A. I. ROOT, Medina, O.

GOSHEN BEE-SUPPLY CO.

OUR BASSWOOD AT THE FRONT.

ONE-PIECE V-GROOVE SECTIONS, FOR $2.00 PER 1000.
FIRST-CLASS, $3.50 PER 1000.

For wholesale rates, write for price list.

Address **MURRAY & ULERY,**
7d **Goshen, Elkhart Co., Ind.**

1888. Bright Italian Queens. 1888.

I have 50 select tested queens of '87 raising that I will sell in April, at $3.00; May, $2.50; June, $2.00; July 1st to Nov., $1.50.

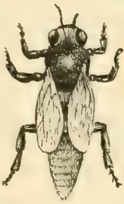
Queens warranted purely mated, $1.00; 6 for $5.00; they are bred from the best of mothers, and are superior to the common run of cheap queens sold at lower prices without any guarantee of purity; their progeny are good workers, and will work on red clover as well as any bees you can get. I take the same pains to rear queens for you as I do for my own use; in fact, they are all raised alike.

I have made queen-rearing a specialty for the last ten years, and I think I understand the business; at least, my customers say I send them the best queens they get.

Have your orders booked now, and send for queens when you want them. I will commence shipping warranted queens as early in May as possible. Safe arrival guaranteed.

J. T. WILSON,
Nicholasville, Jess. Co., Ky.

LOOK HERE!



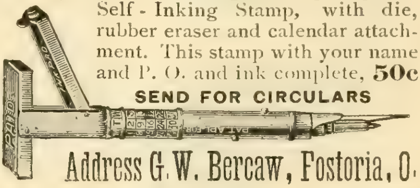
I will sell Italian queens from one of A. I. Root's imported queens. One untested queen, $1.00. Tested queen, $2.00. Select tested queen, $3.00. I also give a box of my pure vegetable liver pills free with each queen. Address

DR. L. L. LOOMIS,
6-17b Pemberville, Wood Co., O.

200,000 ONE-PIECE V-GROOVE SECTIONS, Linn and Buckeye, $3.00 per 1000 for Selected; $2.00 per 1000 for No. 2. For Sample, Address
J. B. MURRAY, Ada, Hardin Co., Ohio.

New Calendar Pen and Pencil,

Combination consists of gold ore pen, pencil Self-Inking Stamp, with die, rubber eraser and calendar attachment. This stamp with your name and P. O. and ink complete, **50c**



SEND FOR CIRCULARS

Address G. W. Bercaw, Fostoria, O.

LITHOGRAPH LABELS

In 12 Colors, at $2.00 per 1000.

When Mr. James Abbott, of London, Eng., was with us a year ago, he had samples of a very neat lithograph label, oblong in shape, measuring $2\frac{1}{8}$x$2\frac{5}{8}$. We mentioned them at the time in GLEANINGS, agreeing to send samples as soon as we received them. Well, they have just come to hand, although we ordered 50,000 over a year ago. They are about the nicest labels we ever saw for glass tumblers, pails, and small packages of honey. We will mail a sample inclosed in our label catalogue, free on application, and will furnish them postpaid at the following prices: 5 cts. for 10; 40 cts. for 100; $1.25 for 500; $2.00 for 1000. A. I. ROOT, Medina, O.

THAT CANADIAN LOCOMOTIVE IS NOWHERE COMPARED WITH

EDEN'S PATENTED COMB FOUNDATION-FASTENER.

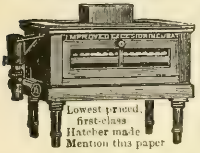
Will fasten foundation of any shape or size, from ½ inch to full sheets, into 1, 2, or 4 piece sections, either before or after they are put together, at the rate of 600 to 800 per hour. For neatness and strength it can not be excelled. Not a particle of foundation wasted. No melted mixture used of any kind. Will work in any temperature. Can be adjusted to different-sized sections, and will last a lifetime. When ordering, send sample section.

Price, Single Machine, - - - - $5.00
" Combined " - - - - - 6.00

ED. S. EDEN, Woodstock, Ont.,
or St. Charles, Mich., U. S.

IMPROVED EXCELSIOR INCUBATOR!

Simple, Perfect and Self-regulating.


IMPROVED EXCELSIOR INCUBATOR
Lowest priced, first-class Hatcher made
Mention this paper

Hundreds in successful operation. Guaranteed to hatch as large percentage of fertile eggs as any other hatcher. send 6c. for new Illustrated Catalogue.

Circulars Free.

GEO. H. STAHL,
Patentee and Sole Manufacturer,
QUINCY, ILLINOIS.

BEE - SUPPLIES

AT DIFFERENT PLACES,

TO BE DISPOSED OF AT A SACRIFICE.

These are all new and first-class goods, which, for various reasons, are on our hands, away from home; and to dispose of them we offer them very low. If some of our readers, not far from where the goods are, need them, this is a good opportunity to get a bargain. Indicate which one you want, by the number as well as name.

No. 1. At Eureka Springs, Carroll Co. Ark.
100 wide frames, to hold eight 1-lb. sections. Value $2.00. Will sell for $1.50.

No. 2. At San Marcos, Hays Co., Texas.
5000 prize sections, 5¼ x 6¼ high. Value $20.50. Will sell for $17.00.

No. 3. At Vermont, Fulton Co., Ill.
30 enamel sheets for Simplicity hive. Value $2.40. Will sell for $1.80.

No. 4. At Eureka, Ill.
100 lbs. of heavy brood foundation, 8⅝ x 17⅛, for wired L. frame. Value $36.00. Will sell for $32.00.

No. 6. At Lawrenceburg, Tenn.
One No. 1 Honey-extractor, for frames 11¼ x 12½ or less in depth. Value $6.00. Will sell for $4.50.

No. 7. At Yorktown, Delaware Co., Ind.
11 Heddon slatted honey-boards double bee-space. Value $1.00. Will sell for 75 c.

No. 9. At Higginsville, Mo.
One 4 H. P. engine and boiler complete, used only five months. Worth new, $275. Will sell for $195.

No. 10. At Aplington, Ia.

10 two-story portico hives in flat	$9.00
100 metal-cornered frames	2.20
100 wide frames	2.00
200 tin separators	3.00
600 sections	2.40
200 sections, 5⅝ x 4¼	1.00
3 lbs. thin foundation, 49 c	1.47
7 lbs. brood foundation, 39 c	2.73
10 enameled sheets	.80

Value $24.60. Will sell for $20.00.

No. 11. At Johnson City, Washington Co., Tenn.
One honey-extractor that will take frames 11½ x 16, or smaller. Value $7.00. Will sell for $5.00.

No. 12. At Caribou, Me.
900 sections, 4½ x 5 x 1 7/16 wide, open on all four sides. Value $4.50. Will sell for $2.50.

No. 15. At Rockdale, Mass.
1000 sections, 4½ x 4½ x 1¾, open all around. Value $4.60. Will sell for $3.00.

No. 16. At Lochiel, Ind.
20 slatted honey-boards to use between brood-chamber and T supers on Simp. hives, bee space top and bottom as we now make them. Value $1.80. Will sell for $1.50.

No 17. At Berlin, Wis.
One 36-inch Exhaust Fan, second hand. It was used about 8 years in our factory. Boxes have been re-babbitted and the fan is in first-class running order. A new one this size is worth about $100.00. We will sell this for $25.00. It is a bargain to the one who is in need of one this size.

No. 18. At Knoxville, Iowa.
One light-power saw-mandrel, $5.00; one 8-in. rip-saw, $1.15; one 6-in. cut-off saw, $.80; and one 5-in. dovetailing saw, $.85. Worth $7.80. Will sell for $6.50.

No. 19. At Marshfield, Ohio.
500 one-piece sections, 4¼ x 4¼ x 1 and 11-16. Value $2.00. Will sell for $1.80. Also 500 dove tailed sections, same size and width. Value $2.25; will sell for $2.00, or both lots for $3.70.

A. I. ROOT, Medina, O.

OUR SECTION FOLDER

SHOULD BE IN THE HANDS OF EVERY HONEY-PRODUCER, FOR IT DOES ITS WORK COMPLETE.

Bee-Hives, Sections, Section-Cases,

Foundation, and other Apiarian Supplies.

Send for our new Catalogue with description of **THE "SUCCESS HIVE,"** which is fast gaining the favor of many bee-men.

ALBINO QUEENS and BEES for 1888.

It should be remembered that we are also Headquarters for the **"Albino Queens."** We also breed **Select Italians.**

Address, **S. VALENTINE & SONS,**
7d HAGERSTOWN, Wash. Co., MD.

FREE! My catalogue of Bees, Queens, Apiarian Supplies, Standard Poultry (7 varieties), Japanese buckwheat, Green Mountain and Empire State potatoes. My stock is first-class. You should see my prices for 1888 before you order. CHAS. D. DUVALL,
5tfdb Spencerville, Mont. Co., Md.

ELLISON'S EARLY ITALIAN QUEENS

	April.	May.
1 untested queen - - - -	1 15	1 00
3 " " - - - -	3 00	2 50
1 tested " - - - -	2 50	2 00
3 " " - - - -	6 00	4 50

Many of the above will be reared in the height of the swarming season, and all will be nearly, if not quite as good as the best swarming queens. In every case satisfaction and safe arrival guaranteed. 6-9db

W. J. ELLISON, Stateburg, Sumter Co., S. C.

HOW TO RAISE COMB HONEY. See Foster's advertisement on another page. 4-15db

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EVERY GOOD FARMER

WHO HAS USED

The Columbia Chilled Plow

Says it is the Lightest Draft, Easiest to Handle, Strongest and **Most Durable,** does **Better Work** in **all Soils;** in short, **the Best Plow in the Market. Don't fail** to try a **Columbia** before purchasing any other. Send for price list, testimonial, and calendar. If they are not sold in your vicinity send for **Special** introducing **Price.** Mention this paper.

6-9db **COLUMBIA PLOW WORKS,**
COLUMBIA CO. **Copake Iron Works, N. Y.**

HEADQUARTERS IN THE WEST FOR PURE ITALIAN

BEES and QUEENS.

Full colonies, from $5.00 to $9.00 each; 2-frame nucleus, untested queen, in May, $2 50; June, $2.25; after, $2.00; 3-frame, in May, $3.50; June, $3.00; after, $2.50. With TESTED queen, add 50c more. Bees, per lb., in May, 90 cts; June, 75 cts.; after, 60 cts. Untested queens in May, $1.00; after, 75 cts.; six, $4.00. Tested, in May, $1 50; after, $1 25. Write for circular of Bees, Queens, Sections, Foundation, etc.
6-14db Address JNO. NEBEL & SON, High Hill, Mo.

Cash for Beeswax!

Will pay 20c per lb. cash, or 23c in trade for any quantity of good, fair, average beeswax, delivered at our R. R. station. The same will be sold to those who wish to purchase, at 25c per lb., or 28c for *best selected wax.*

Unless you put your name *on the box,* and notify us by mail of amount sent, I can not hold myself responsible for mistakes. It will not pay as a general thing to send wax by *express.*

A. I. ROOT, Medina, Ohio.

ALSIKE.

I sold more alsike seed last season than all the supply-dealers combined. Write to headquarters for prices. No poor seed in stock. Also 25 large pkts. of garden-seed, fresh and No. 1 in all respects, for 65 cts., *postpaid*. Write for further particulars, to C. M. GOODSPEED, Box 27, Thorn Hill, N. Y. Be sure and name Box 27 in answering this adv't.

FOR SALE.—An 80-acre farm, suitable for fruit-growing or general farming; within 30 miles of Kansas City; 1¾ miles of a good market. For particulars, send postal to J. LEA. SIMPSON,
6-7d Tonganoxie, Kansas.

1888. 1888.

Pure Italian Bees and Queens

for sale in Full Colonies or Nuclei. Five L. frame nuclei a specialty. My queens and bees possess all the good qualities of the most desirable honey-bee.

Send for prices. **WM. LITTLE,**
6tfdb **Marissa, Ill.**

ITALIAN BEES AND QUEENS.

1 untested queen $1.00; three for $2.00. Bees by the pound and nucleus. Send for price list.

H. G. FRAME,
5-15-d **North Manchester, Ind.**

DO YOU KNOW

that I am headquarters for **Queen Mothers,** and full Colonies? 12 years in originating a superior strain of Italian Bees. If you mean business, I will cheerfully respond. Price list free.

F. BOOMHOWER,
5tfd **Gallupville, N. Y.**

BEES and QUEENS

READY TO SHIP.

Friends, if you are in need of Italian bees and queens, reared from imported mothers, I can accommodate you at the following low prices: Italian bees, ½lb., 75 cts.; 1 lb., $1.00; untested queens, $1.00; tested, $2.00. Hybrid bees, ½ lb., 65 cts.; 1 lb., 90 cts.; Hybrid queens, 75 cts. Prices by the quantity will be sent on application. 5-11d

W. S. CAUTHEN, Pleasant Hill, S. C.

FOR THE LATEST, BEST, AND CHEAPEST

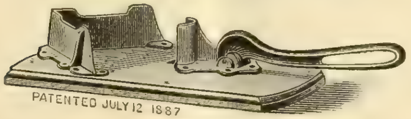
WINTER BEE-HIVES, Honey-sections, Section Honey-boxes, to fit any hive, also Comb Foundation, Fruit-evaporators, all sizes, from $6.00 up, address

D. STUTZMAN, Ligonier, Ind.

LOOK HERE!

A complete hive for comb honey, for only $1.30. Planer-sawed, V-groove sections a specialty. Price list free. **J. M. KINZIE & CO.,**
17tfd **Rochester, Oakland Co., Mich.**

A MACHINE FOR PUTTING TOGETHER ONE-PIECE SECTIONS.



IT WILL PAY FOR ITSELF IN ONE DAY'S USE.

No bee-keeper can afford to be without one. Send to your supply-dealer, or to Wakeman & Crocker, manufacturers. Price $2.50. Lockport, N. Y. Correspondence with supply-dealers solicited.

1872. **ALL MY ORDERS FOR 1887** were filled without one word of complaint; and the progeny of my queens was pronounced by some to be the finest they ever saw. I am now booking orders, to be filled as soon as weather permits. **1888.**

One untested queen - - - - - -	$ 80
One tested " - - - - - -	1 00
One selected " - - - - - -	1 50

Safe arrival and satisfaction guaranteed.

Send for price list. **C. M. HICKS,**
5-7-9d **Fairview, Wash Co., Md.**

JOB LOT OF POULTRY-NETTING.

Small Pieces at same Rate as full Rolls—⅝ ct. per Square Foot.

Two or more pieces, 5 per cent off; ten or more, 10 per cent discount.

You will notice in this lot some with heavier wire than No. 19, and some with smaller mesh than two-inch. Both of these are worth more at regular prices than two-inch No. 19; but as it is a job lot we put it all in at the same price.

Inches wide.	Inch mesh.	No. of Wire.	By dividing the number of square feet in this column by the width in the first column, you can ascertain the length of each piece. These figures give the number of square feet in each piece.
6	2	18	10.
12	2	19	85, 50, 41, 25, 25, 10.
12	2	18	15, 13, 13, 1¼ mesh, No. 18 wire, 24.
24	1½	20	120, 120.
24	1½	19	28, 30.
24	2	19	200, 170, 140, 130, 120, 100, 100, 88, 82, 64, 56, 32.
24	2	18	226, 224, 58, 58, 56.
30	1½	19	41, 32, No. 18 wire, 90, 40.
30	1¼	19	17.
30	2	19	250, 237, 167, 125, 125, 122, 45, No. 18, 150.
36	2	19	195, 126, 33, 1½ in., No. 20 wire, 348, 312.
42	2	18	203, No. 18, 1½ mesh, 189.
54	2	19	450, No. 18 wire, 324.
60	2	19	595, 490, 445, 335, 330, 325, 285, 280, 240, 225, 220, 180, 165, 160, 140, 130, 80.
60	2	18	410, 335, No, 17 wire, 195.
72	1½	19	438, 312, No. 18 wire, 228.
72	2	19	750, 720, 672, 636, 618, 558, 510, 438, 420, 270, 252, 252, 222, 192, 168, 168, 162, 162, 156, 156, 156, 66, 48.

We know of nothing nicer or better for a trellis for creeping vines than the above netting. The 12 to 24 inch is just the thing to train up green peas, fastening the netting to stakes by means of staples. If the stakes are set in substantially, one each 12 or 15 feet will answer. When the peas are stripped off the stakes, netting and all can be rolled up and laid away until another season. A. I. ROOT, MEDINA, O.

Green Wire Cloth,

FOR

Window Screens and Shipping Bees,

AT

GREATLY REDUCED PRICES.

The following lot of wire cloth is a job lot of remnants, and full rolls direct from the factory, that are FIRST QUALITY, and the pieces are of such variety of size as to furnish any thing you want. Price 1¾ cts. per sq. foot, for full pieces. If we have to cut the size you want, 2 cts. per sq. ft.

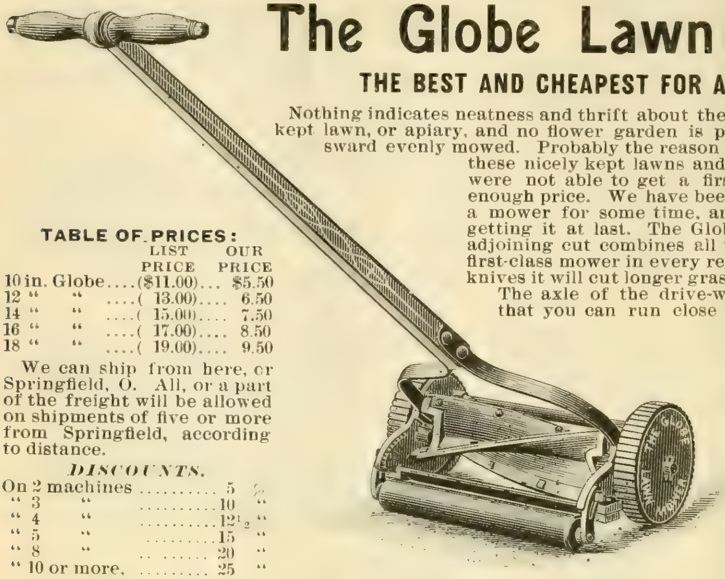
When you order a piece, and somebody else has got it ahead of you, we will substitute a piece the nearest in size to the one ordered, unless you specify in your order that you do not want us to substitute. The figures on the left indicate the width.

8	10 rolls, 67 sq. ft. each: 1 each of 66, 65, 64, 63, 63, 62, 54, 40, 27, 24, 22, and 4 sq. ft.
12	34 rolls of 100 sq. ft. each; 3 of 102 sq. ft; 3 of 98, and 1 each of 97, 92, 75, 52, 48, 44, 43, and 28 sq. ft.
14	1 roll 14 sq. ft.
16	8 rolls of 133 sq. ft.; and 1 each of 132, 130, 130, 128, and 105 sq. ft.
18	6 rolls of 147 sq. ft., and 1 each of 153, 150, 148, 145, 145, 69, and 24 sq. ft.
22	1 roll each of 55, 55 and 16 sq. ft.
24	22 rolls of 200 sq. ft. each, and 1 each of 280, 66, 66, 50, 44, 36, 36, 32, 30, 24, 20, and 8 sq. ft.
26	99 rolls of 216 sq. ft. each, and 1 each of 215, 210, and 204 sq. ft.
28	49 rolls of 233; 3 of 224; 1 of 257, 240, 234, 219, and 214 sq. ft.
32	1 roll of 266, and one of 275 sq. ft.
34	18 rolls of 283 sq. ft. 1 each of 142, 132, 130, 9, and 9 sq. ft.
36	6 rolls of 300 sq. ft.
38	21 rolls of 316 sq. ft., and 1 each of 633 and 300 sq. ft.

A. I. ROOT, Medina, O.

The Globe Lawn-Mower.

THE BEST AND CHEAPEST FOR ALL TO BUY.



Nothing indicates neatness and thrift about the house so well as a nicely-kept lawn, or apiary, and no flower garden is prettier than a nice green sward evenly mowed. Probably the reason more people do not have these nicely kept lawns and apiaries is because they were not able to get a first-class mower at a low enough price. We have been on the lookout for such a mower for some time, and we have succeeded in getting it at last. The Globe lawn-mower shown in adjoining cut combines all the best features, and is a first-class mower in every respect. Having only three knives it will cut longer grass than those having four.

The axle of the drive-wheel does not project, so that you can run close to the hive. It has two drive-wheels and roller, and the driving gears are simply perfect. Nothing could be more simple and effective. The prices are very much lower than on any other first-class mower, in fact they are about as low as the cheap grade of machines, and yet this mower is not surpassed by any machine on the market, but is guaranteed to be first-class.

TABLE OF PRICES:

	LIST PRICE	OUR PRICE
10 in. Globe	($11.00)	$5.50
12 " "	(13.00)	6.50
14 " "	(15.00)	7.50
16 " "	(17.00)	8.50
18 " "	(19.00)	9.50

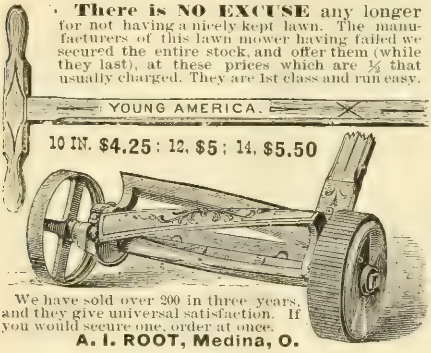
We can ship from here, or Springfield, O. All, or a part of the freight will be allowed on shipments of five or more from Springfield, according to distance.

DISCOUNTS.

On 2 machines	5 %
" 3 "	10 "
" 4 "	12½ "
" 5 "	15 "
" 8 "	20 "
" 10 or more,	25 "

A. I. ROOT, Medina, Ohio.

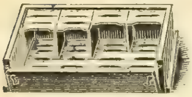
There is NO EXCUSE any longer for not having a nicely kept lawn. The manufacturers of this lawn mower having failed we secured the entire stock, and offer them (while they last), at these prices which are ½ that usually charged. They are 1st class and run easy.


YOUNG AMERICA.

10 IN. $4.25 : 12, $5 : 14, $5.50

We have sold over 200 in three years, and they give universal satisfaction. If you would secure one, order at once.

A. I. ROOT, Medina, O.



Eaton's Improved
SECTION CASE.
BEES AND QUEENS. Send for free catalogue. Address
FRANK A. EATON,
5-10db **Bluffton, Ohio.**

C. M. DIXON, PARRISH, FRANKLIN CO., ILL.

MANUFACTURER OF AND DEALER IN

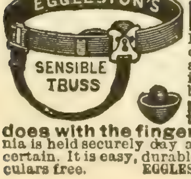
APIARIAN SUPPLIES,

AND BREEDER OF

FANCY POULTRY.

5-8db Send for Price List.

ON 30 DAYS' TRIAL.



THIS NEW

ELASTIC TRUSS

Has a Pad different from all others, is cup shape, with Self-adjusting Ball in center, adapts itself to all positions of the body while the **ball** in the cup **presses back the intestines just as a person does with the finger.** With light pressure the Hernia is held securely day and night, and a radical cure certain. It is easy, durable and cheap. Sent by mail. Circulars free. **EGGLESTON TRUSS CO., Chicago, Ill.**

20-7db

CHENANGO VALLEY APIARY.

HEADQUARTERS IN N. Y. STATE.

If you want **NORTHERN QUEENS** reared from pure Italian stock, imported or golden queens, send me your order. The great popularity of my golden queens last summer has induced me to devote my apiary exclusively to bees and queens the coming season. Prices as follows:

Untested queens in June	$1 00
Tested " in June	1 50
Two-frame nuclei in June and July, with untested queen	2 00

Reference if desired. Send stamps for reply, to A. I. Root, or National Bank, Sherburn. Send for free circular.

MRS. OLIVER COLE,
6tfdb Sherburne, Chenango Co., N. Y.

DADANT'S FOUNDATION FACTORY, WHOLESALE and RETAIL. See advertisement in another column. 3tfbd

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E. W. PITZER, HILLSDALE, IOWA,

Producer of and dealer in Italian Bees, comb and extracted Honey; also M. B. Turkeys, Toulouse Geese, Langshan, P. Rock, and White R. Comb Leghorn Chickens. Our breeding stock is first-class, and judiciously mated. Send for price list. 58db

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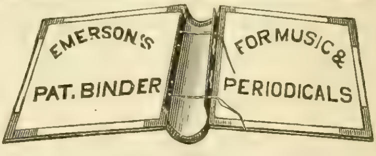

You can not look over the back No's of GLEANINGS or any other Periodical with satisfaction, unless they are in some kind of a Binder. Who has not said—"Dear me, what a bother—I *must* have last month's Journal and it is nowhere to be found?" Put each No. in the Emerson Binder as soon as it comes, and you can sit down happy, any time you wish to find anything you may have previously seen, even though it were months ago.

Binders for GLEANINGS (will hold them for one year), gilt lettered, for 60 cts.; by mail, 12 cts. extra. Ten, $5.00; 100, $45.00. Table of prices of Binders for any Periodical, mailed on application. Send in your orders. A. I. ROOT, Medina, Ohio.

The Canadian P. O. authorities refuse to receive these through the mails, as they exceed the proper weight for merchandise.

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ITALIAN BEES FOR SALE.

Seventy colonies in ten-frame Langstroth hives, at $5.00 per colony. **JOHN GRANT,**
8-11db Batavia, Clermont Co., Ohio.

ITALIAN BEES, QUEENS, AND EGGS

from high-class Silver Laced Wyandotte, and S. C. B. Leghorn fowls, at living rates. Price list free.
8tfdb **GEO. A. WRIGHT, Glenwood, Susquehanna Co., Pa.**

IF YOU HAVE LOST ALL YOUR BEES, you had better send a postal card for my prices for the coming season. 8tfdb THOMAS GEDYE, LaSalle, Ill.

FOR SALE.—One complete Saw-mill, with one 42-inch circular saw for sawing logs. Is new; never been used. Cost $231.00; will take $175.00 for it, on board the cars here. THOMAS GEDYE,
8d LaSalle, LaSalle Co. Ill.

26 EGGS, $1.50; 13, $1.00. Todd strain of Brown Leghorns. **A. F. BRIGHT, Mazeppa, Minn.**

SPECIAL NOTICES.

T TINS.

While strolling through the tin-shop yesterday we were informed that our original T-tin machine has made 110,000 T tins. This will give our readers some idea of the popularity of the T super. At the present time it seems to fill the bill better than any other surplus arrangement in use.

THE NEW JAPANESE BUCKWHEAT.

Remember, we have in stock about 80 bushels of choice seed of this plant that did so well the past season. We offer it as follows: ¼ lb., 5 cts.; 1 lb., 12 cts.; ½ peck, 60 cts.; 1 peck, $1.00; ½ bushel, $1.90; one bushel, $3.50; 5 bushels or over, $3.00 per bushel. Bags free.

A LAWN-MOWER FOR $4.25.

We call the attention of our readers to our advertisement of the Young America Lawn-mower, in another column. Having bought the entire stock at assignee's rate, we are enabled to make this most unparalled offer in the history of lawn-mowers. We shall be pleased to quote still lower prices in quantities to those who desire to supply their neighbors and friends with a good mower at a low price.

GARDEN-SEEDS, POTATOES, ETC.

Although there has been quite a brisk time among seedsmen, and many of our large houses have run out of certain seeds, we are prepared to furnish every thing in our price list by the first mail or express, without any advance in price, with the exception of the Early Ohio potatoes. We are out of these and can not find any. If any of our readers have some to sell, will they please inform us at once, with price?

ITALIAN BEES AT ONE-HALF OUR REGULAR PRICE.

We have at Quitman, Mo., about 20 colonies of Italian bees in good condition; and as we desire to dispose of them quickly, we will offer them at half our catalogue price, which would be $10 for a full colony with queen. Two colonies, $19; three colonies, $27; 4 colonies, $35; 5 colonies, $42.50; 10 or more, $7.50 per colony. These are a rare bargain. Please send in your order early if you wish to secure them.

FRIEND MARTIN'S CAREFULLY SELECTED AND IMPROVED TURNIP-SEED.

In answer to an inquiry to friend M., in regard to such seed as he uses and recommends in this number, he replies that the turnips are only just planted from which he expects to raise the seed for this season's use. You will remember, he recommends using new seed just harvested. Those who want seed may leave orders with friend Martin or with us, as they choose. The price of seed from these selected turnips will be 15 cts. per ounce; 60 cts. per half-pound, or $1.00 per pound. The ounces will be prepaid; pounds and half-pounds at the rate of 18 cts. per pound extra, for bag and postage. I think it quite likely that the demand for this seed will be greater than he can supply. Therefore you had better have your orders placed on file to be filled just as soon as the seed can be harvested.

THE A B C OF POTATO CULTURE.

The demand for this book for the past few weeks has been beyond precedent. In fact, our mailing-clerks keep a pile of them already wrapped up, and when I read the mail I sort out the orders for the potato-book and put them all together. I presume it is the almost unprecedented price of potatoes that has something to do with it. Another thing, people are waking up to the importance of improved potato culture in a way they never did before. Good! When our boys get enthusiastic in raising potatoes we need not worry about them much—no, not even if potato-growing gets to be a fever. It will be far better for our nation when our boys are seen rushing to the fields and engaging brain and muscle in growing potatoes rather than to crowd the cities, begging for permission to stand behind a counter for barely enough to pay for board and clothing.

KIND WORDS FROM OUR CUSTOMERS.

The orphans are in exstacy over "Fables and Allegories." A very nice book for the money.
Peoria, Ill. MRS. L. HARRISON.

The goods you sent me came promptly and safely I am more than pleased with them. I am beginning to keep a few bees for home supply, and have enjoyed your A B C more than I can tell you. My bees had a nice fly on the 13th of this month. They are packed in chaff, as you direct. I am a farmer's busy wife, with a family of little ones whom I am trying to teach to love flowers and pets.
HATTIE MELTAY.
Olathe, Johnson Co., Kansas.

AN A B C SCHOLAR 62 YEARS OLD, AND HOW HE HAS SUCCEEDED.

I am an A B C scholar 62 years old this coming spring. I take your A B C book and GLEANINGS, and think I could not get along without them. I appreciate them very highly. I commenced with two small nuclei three years ago last summer. I wintered seven last winter, without any loss. I winter on summer stands in your chaff hives. I think your chaff hives can't be beat for wintering bees. NOAH THOMAS.
Horatio, Ohio.

EXCEEDINGLY INTERESTED IN GLEANINGS.

We have taken your paper one year, and have become exceedingly interested, so that we think we must look it all through before retiring, no matter how late we receive it. Our bees never did so well, and we feel that we have profited by your Home talks. Whether we have kept up with the bees or not is not for us to say; but we hope that you may be prospered in your good work to a good old age.
MRS. AND MR. HERBERT DEMING.
Cornish Ctr., N. H.

Wants or Exchange Department.

Notices will be inserted under this head at one-half our usual rates. All ad's intended for this department must not exceed 5 lines, and you must SAY you want your ad. in this department, or we will not be responsible for any error. You can have the notice as many lines as you please; but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale can not be inserted under this head. For such our regular rates of 20 cts. a line will be charged, and they will be put with the regular advertisements.

WANTED.—Correspondence on apples, potatoes, seed-potatoes, cabbage, onions, small fruit, and fruit and produce generally. Consignments solicited. Will quote market at any time.

EARLE CLICKENGER,
4tfdb General Commission Merchant,
119 East Town St., Columbus, O.

WANTED.—To exchange for any thing of a standard market value, full colonies of Italian bees on 8 L. or Simplicity frames, in shipping-boxes, at $4.00 per colony.
5tfdb W. A. SANDERS, Oak Bower, Hart Co., Ga.

WANTED.—To exchange Quinby Chaff Hives, with 10 standing frames, one 4-frame honey-extractor, new, for beeswax, foundation, or offers.
MRS. OLIVER COLE,
6tfdb Sherburne, Chenango Co., N. Y.

WANTED.—To exchange Johnston's Sweet-raspberry plants, for new varieties of strawberry, raspberry, and blackberry, or plum and sour-cherry trees. 7-10db P. SUTTON, Exeter, Luz. Co., Pa.

WANTED.—To exchange bees in Heddon hives, for a light one-horse buggy.
79db S. C. KIRKPATRICK, Hodgenville, Ky.

WANTED.—To exchange Cuthbert red-raspberry roots, and Tyler black-cap, for 1-lb. sections, fdn., beeswax, pounds of bees with queen, or female ferrets. 7-8d M. ISBELL, Norwich, N. Y.

WANTED.—To exchange best queen and drone trap made, for extractor or bee-supplies.
J. A. BATCHELDER,
Keene, N. H.

WANTED.—To exchange an Arion piano, used 5 years, No. 1 order for bees, and offers.
J. C. STEWART, Hopkins, Mo.

WANTED.—To exchange White Leghorn eggs for tested Italian queens, comb foundation, and pure Italian bees. J. L. SNIPES, Seneca, S. C.

WANTED.—To exchange a Given foundation-press for a Hall or Hammond type-writer, or offers; also a foot-power saw for exchange.
8d C. A. GRAVES, Birmingham, O.

WANTED.—To exchange a Model hand-inking printing-press, with two fonts of type and furniture, size of chase 3¼x5¼, for Italian bees by the pound. C. P. SURLS,
8d Gamma, Montgomery Co., Mo.

WANTED.—To exchange a fine gold watch, magic lantern, B. L. pullets, or from one to two hundred acres of land—plenty of basswood, etc., on good road, for Italian bees and supplies. Correspondence solicited. Address G. C. HUGHES,
Pipestem, Summers Co., W. Va.

WANTED. — Standard apple, pear, and quince trees; also buffalo-robe. Will exchange choice eggs for hatching from prize L. Brahmas, Wyandottes, and Pekin ducks, 14 years' experience.
8d CHAS. MCCLAVE, New London, O.

WANTED.—To exchange Plymouth Rock eggs, Conger strain, very fine, for tested Italian queens. Address ST. JOSEPH APIARY,
8d St. Joseph, Mo.

WANTED.—To exchange bees for a Tuttle knitting-machine. L. HEINE,
8d Bellmore, Queens Co., N. Y.

WANTED.—To exchange poultry, eggs for hatching, or bees by the pound, and queens, for brood-frames built of wired fdn.
THOMAS GEDYE, La Salle, La Salle Co., Ill.

Black and Hybrid Queens For Sale.

For the benefit of friends who have black or hybrid queens which they want to dispose of, we will insert notices free of charge, as below. We do this because there is hardly value enough to these queens to pay for buying them up and keeping them in stock; and yet it is oftentimes quite an accommodation to those who can not afford higher-priced ones.

For sale, 6 black queens and 2 hybrids, at 25 and 50 cts. respectively, or will exchange for good hardy strawberry or raspberry plants.
T. K. MASSIE, Concord Church, Mercer Co., W.Va.

For sale, 10 black queens, at 25c each. Ready to mail. Send early. YOUNG G. LEE,
Charlotte Harbor, Fla.

For sale, one dozen or more of black and hybrid queens, in each month, till I sell about 75 queens. Black queens 25 cts.; hybrids 40 cts. each.
J. W. POOLE, Russellville, Pope Co., Ark.

For sale, 10 hybrid queens, now ready, for 50 cts. each. All young. C. C. KIRKMAN,
Coxville, Pitt Co., N. C.

For sale, five mismated Italian queens, at 50 cts. each. Will be ready to ship May 10th.
EDWIN D. BARTON, E. Hampton, Middlesex Co., Ct.

For sale, 7 black queens, 40 cts. each; 2 for 75 cts., or 7 for $2.25. Safe arrival guaranteed.
J. N. COLWICK, Norse, Bosque Co., Texas.

NEW AND SECOND-HAND FOUNDATION-MILLS AT REDUCED RATES.

We have on hand the following fdn. mills that we desire to dispose of; and to do so we quote these special prices: One 14-inch mill, made about 2 years ago, but has never been used. This mill makes fdn. with the round, or improved cell. It is as good a mill as we could make a year ago; but with our new machine for cutting the rolls we do much better work now, hence we offer this mill at the very low figure of $25.00. Regular price $40.00.

One 10-inch mill, made about 3 years ago; has been used almost none; it is at Church Creek, Md. Regular price, $20.00. Will sell for $15.00.

One 6-inch drone-mill, new; never been used; just right for making thin drone fdn. for section boxes. Regular price $15.00. We will sell it for $13.00.

One 6-inch Olm mill, made 6 or 7 years ago; has been used a little, but will do nicely for one who wants to make his own fdn. We will sell it for $8.00.

One 6-inch Pelham mill. A new machine, never been used. We took it in exchange for one of our make. Will sell it for $8.00.

A. I. ROOT, Medina, O.

HOW TO RAISE COMB HONEY. See Foster's advertisement on another page. 4-15db

MUTH'S

HONEY-EXTRACTOR.

SQUARE GLASS HONEY-JARS.

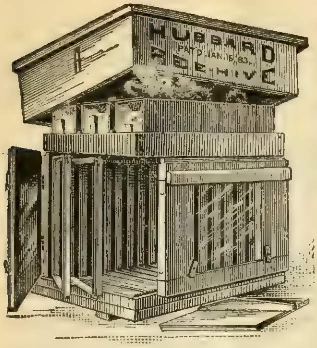
TIN BUCKETS, BEE-HIVES.

HONEY-SECTIONS, &c., &c.

PERFECTION COLD-BLAST SMOKERS.

Apply to CHAS. F. MUTH & SON,
CINCINNATI, O.

P. S.—Send 10-cent stamp for "Practical Hints to Bee-Keepers." 1tfdb



CIRCULARS FREE.

ASK FOR SAMPLE ONE-PIECE SECTION IF YOU WANT IT.

G. K. HUBBARD,
LA GRANGE, INDIANA.

If you are ever annoyed by the scraping and breaking of combs; killing bees when setting a frame to one side, or hanging it in the hive; sagging at the bottom and getting waxed fast; shaking about when moving a hive; in short, if you dislike to pry and wrench your frames, break combs, and kill bees while handling them, you will be pleased with this hive.

VERY CONVENIENT. ACENTS WANTED.

10c For "1st Principles in Bee Culture." It tells how to Divide Transfer, Introduce Queens, Feed, Unite, Stop Robbing, &c Money returned upon return of book, if you are not satisfied

---

J. P. Caldwell, of San Marcos, Tex.

Pure Italian queens.	April.	May.	Jun. to Oct.
Select tested	$2 75	$2 25	$1 75
Tested	1 75	1 50	1 25
Untested	1 00	90	75
Six untested	5 00	4 40	3 75
Twelve untested	9 50	8 00	7 00

All queens will be shipped in cages which answer the double purpose of an introducing and shipping cage. Address J. P. CALDWELL, San Marcos, Tex.
7-18db

PURE ITALIAN BEES FOR SALE.

Full colony in A. I. Root's Simp. hive $6 00. Two-frame nuclei $3 00. Three-frame $3 50. Each nucleus and full colony to contain a tested queen and plenty of bees and brood, all on wired L. frames, combs drawn from fdn. Hives new, every thing first-class. To be shipped in May. Safe arrival guaranteed. I shall do by all as I would be done by. Address

N. A. KNAPP,
7-10db **Rochester, Lorain Co., O.**

The ABC of
POTATO ✣ CULTURE.

HOW TO GROW THEM IN THE LARGEST QUANTITY, AND OF THE FINEST QUALITY, WITH THE LEAST EXPENDITURE OF TIME AND LABOR.

Carefully Considering all the Latest Improvements in this Branch of Agriculture up to the Present Date.

ILLUSTRATED BY TWENTY ENGRAVINGS.

Written by T. B. TERRY, of Hudson, O.

Table of Contents: Soils, and their Preparation.—Manures, and their Application.—When, and How Far Apart Shall we Plant?—Shall we Plant Deep or Shallow?—Shall we Plant in Hills or Drills?—How to Make the Drills, and Fill Them.—Selection and Care of Seed.—Cutting Seed to One Eye.—Planting Potatoes by Machinery.—Harrowing after Planting.—Cultivating and Hoeing.—Handling the Bugs.—The Use of Bushel Boxes.—A Top Box for the Wagon.—Digging.—Storing.—What Varieties shall we Raise?—Potato-growing as a Specialty.—Best Rotation where Potatoes are made a Special Crop.—Cost of Production, and Profits.

Besides the above, we have recently added an appendix of 8 pages, bringing the book up to the present date, and containing an account of all the improvements made during the past two years.

Price 35 cts.; by mail, 38 cts.

A. I. ROOT, Medina, Ohio.

IMPORTANT!

QUEENS to be shipped by return mail, when ordered. It is best to get two and four frame nuclei when ordering bees. Choice, fine, solid red and yellow Italian queens, at the following prices: Untested, from now through the season, $1.00; tested, $2.00; select tested, $2.50; standard breeders, $3.00. Bees by the pound, $1.00; frame of brood, 75 cts. My bees are gentle Italians, with great power of wing, and fine honey-gathering capacity. No foul brood, no moth. 7-18db

R. H. CAMPBELL,
LOCK BOX 215. **Madison, Morgan Co., Ga.**

LUTHER GRAY, Orlando, Fla., Early Italian Queens, $1.00 each. Try my one-frame nuclei, containing 2 lbs. of bees and queen (two crated together) at $3 00 each. Safe arrival guaranteed. 6tfdb

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WE HANDLE THE BEST SUPPLIES

OF ALL MANUFACTURERS.

We also make the best smoker on the market. All dealers should handle it. Send for wholesale list. It should be in every apiary; let every bee-keeper send for my illustrated catalogue, free. All implements used in an apiary, sold at reasonable rates. Beeswax bought at GLEANINGS quotations.

3-10db **W. E. CLARK, Oriskany, N. Y.**

FREE! FREE! FREE!

Upon application. Our 28th Annual Price List. A full line of

BEE-KEEPERS' SUPPLIES.

CHOICE COMB FOUNDATION AND WHITE-POPLAR SECTIONS A SPECIALTY.

100 COLONIES OF CHOICE ITALIAN BEES

for sale cheap. Also NUCLEUS COLONIES and QUEENS. Orders booked now. Address

WM. W. CARY & CO.,
3tfdb **Colerain, Franklin Co., Mass.**
Successors to WM. W. CARY. (Please mention GLEANINGS.)

FOR SALE.

Italian Queens and Bees by the Colony, Nucleus, and Pound. Dealer in Bee-keepers' supplies. Address **OTTO KLEINOW,**
5tfdb (Opp. Fort Wayne Gate), Detroit, Mich.

BEES, Queens, Hives, Given Comb Foundation, Apiarian Supplies, German Carp, Small-fruit Plants. Send for catalogue free. E. T. Flanagan, Belleville, Ills. 1-24db.

LEPAGE'S
LIQUID GLUE
FOR SALE EVERY

LEPAGE'S LIQUID GLUE.

Few words of praise are necessary for this excellent article, so widely known and advertised. It is one of the best of liquid glues. Always ready for use. Mends every thing. We have 4 different-sized packages.

Glass bottle like the adjoining cut for 10 cts.; 75 cts. for 10; $7.00 per 100. Half-gill tin cans with screw cap, and brush fastened to inside of cap, price 15 cts. each; $1.10 for 10; $10.50 per 100. This latter can be sent by mail for 10c. extra for postage and packing.

Gill tin can with brush, 20 cts.; 10 for $1.50; 100 for $14.00; ½-pint tin cans, no brush, 25 cts.; $2.20 for 10; $21.00 per 100.

LePage's MUCILAGE, in large bottles, with a nice enamel-handle brush, at 10 cts. each; 75 cts. for 10; $7.00 per 100. This is the best mucilage made, and will do nicely in many cases for glue, although it is pretty thin to be used as glue.

A. I. ROOT, Medina, O.

HONEY COLUMN.

CITY MARKETS.

COLUMBUS.—*Honey.*—Market is very dull, ranging in price from 15@17c per lb. *Beeswax* about the same. No demand.
EARLE CLICKENGER,
April 10. 119 E. Town St., Columbus, Ohio.

CHICAGO.—*Honey.*—Trade is very quiet, and no sales of any consequence being made. Prices are weak; concessions made when insisted upon, rather than risk carrying over. 15@17c for best pound sections, and 7@9 for extracted. *Beeswax*, 23c.
R. A. BURNETT,
161 So. Water St., Chicago, Ill.

NEW YORK.—*Honey.*—The comb-honey market continues dull. We quote: Fancy white comb honey, 1-lb. sections, 13@15; same in 2-lb. sections, 10@11. Buckwheat comb, 2-lb. sections, 9; same in 1-lb. sections, 10. *Beeswax*, 24.
MCCAUL & HILDRETH BROS.,
April 7. 28 & 30 West Broadway, N. Y.

CLEVELAND.—*Honey.*—The market is very dull; offering the best white comb at 14@15, and trying our best to close all out before new crop comes in.
A. C. KENDEL,
April 11. Cleveland, Ohio.

DETROIT.—*Honey.*—Best white comb honey in 1-lb. sections still quoted at 15@16c; with little demand. Extracted, 9@10. *Beeswax*, some firmer, 23@24.
Bell Branch, Mich., Apr. 11. M. H. HUNT.

CINCINNATI.—*Honey.*—Nothing new in the market. Prices for best comb honey range between 14@17 in the jobbing way, with a very slow demand. Demand is good for extracted honey in all shapes, with a good supply. It brings 4@9, according to quality, on arrival. *Beeswax.*—Demand is good; 20@22 for good to choice yellow, on arrival.
CHAS. F. MUTH & SON,
April 10. Cincinnati, O.

FOR SALE.—2 barrels of nice basswood and clover honey. Address THOS. DONOHOE, Ft. Dodge, Ia.

CONVENTION NOTICES.

The Darke County Union Bee-keepers' Society will hold its annual meeting on Friday, April 27th, at Ansonia, Ohio.
J. A. ROE, Sec'y.

The Keystone Bee-keepers' Association will hold its sixth annual meeting in the Court-house in Scranton' Pa., on Tuesday, May 8th, at 10 o'clock A. M. All bee-keepers are invited.
ARTHUR A. DAVIS, Sec'y.

The first meeting, for 1888, of the Fayette Co. Bee-keepers' Association will be held at the residence of J. W. Gillispie, Washington C. H., on Thursday, April 26th, at 10 A.M. A full attendance is desired, as the annual election of officers takes place.
S. R. MORRIS, Sec'y.

The annual meeting of the Western Bee-Keepers' Association will be held at Independence, Mo., at the court-house, on the 25th of April, 1888. The meeting will be carried on as a sociable, friendly gathering. Take your baskets with you and let us have a good time. A cordial invitation is extended to all.
PETER OTTO, Sec.

The tenth annual meeting of the Texas State Bee-keepers' Association will be held at the bee-yards of Vice-president W. R. Graham, Greenville, Hunt Co., Texas, May 2d and 3d, 1888. A leading feature of the convention will be criticisms upon subjects that have gone through the bee-journals. All Texas and Arkansas bee-keepers are expected to be present. All are cordially invited. No hotel-bills to pay. B. F. CARROLL, Sec'y.

The eighteenth semi-annual session of the Central Michigan Bee-keepers' Association will be held in the Pioneer Room at the Capitol, Saturday, April 21, 1888, commencing at 9 A. M. After the business meeting and the annual election of officers, the members and friends will be addressed by A. J. Cook, of the Michigan State Agricultural College. A cordial invitation is extended to all, especially those interested in bee culture, as this will be a very interesting meeting. W. A. BARNES, Sec'y.

The semi-annual meeting of the Progressive Bee-keepers' Association will be held in the Sons of Temperance Hall at Bainbridge Center, O., on Thursday, May 3, 1888. Parties wishing conveyance from Geauga-Lake Station, on the Erie R. R., three miles distant, please notify Mr L. H. Brown, Bissels, Geauga Co., O., so that arrangements can be made for the same. All interested are invited. MISS DEMA BENNETT, Sec'y.

The next meeting of the Susquehanna County Bee-keepers' Association will be held at New Milford, on May 5th, 1888. Subjects for consideration at that time are as follows: 1. Bee-Keeping for Pleasure and Profit: 2. Spring Work with Bees; 3. Is it advisable to use Foundation? If so, to what Extent? 4. How can we make our Association of the most practical Use to its Members? We especially invite all bee-keepers who can to come and help make the meeting as interesting as possible.
H. M. SEELEY, Sec.

PRICE LISTS RECEIVED.

Since our last we have received price lists from the following persons:

A. L. Swinson, Goldsboro, N. C., issues a large-sized 4-page circular of the products of the Tar-Heel apiaries.

B. Davidson, Uxbridge, Ontario, sends a 4-page list of hives, fanning mills, etc.

F. Boomhower, Gallupville., N. Y., sends us a very nice 8-page list of bees, queens, and fine fowls.

D. Melling, Ebenezer, O., sends us his first catalogue of bees and fowls.

R. H. Schmidt, Caroline, Wis., mails us an 8-page list of supplies in general.

J. M. Hambaugh, Spring, Ill., sends us a 12-page list of hives and supplies. It is nicely printed.

F. M. Atwood, Rileyville, Ill., publishes an 8-page list of apiarian supplies.

C. M. Muth, Cincinnati, O., sends a 32-page list of everything pertaining to bees and honey.

A. F. Bright, Mazeppa, Minn., issues a very pretty 16-page list of bees, queens, and fowls.

G. L. Tinker, New Philadelphia, O., sends us an elegant 16-page list of Syrio-albinos, sections, etc.

W. E. Clark. Oriskany, N. Y., sends out a very neat 24-page price list of bee supplies.

HONEY STATISTICS

FROM ALL PARTS OF THE UNITED STATES.

THE following in the way of honey statistics came after the last GLEANINGS was out. As will be seen, they come from distant parts of the United States, and hence the delay. Of course it is to be understood that the questions are the same as were given on page 244, last issue. They are as follows:

CALIFORNIA.

W. W. Bliss, Duarte. S. W. 3-23.
a. Nine-tenths; b. very good indeed; c. new honey from fruit bloom, alfilerea, willow, etc.

J. P. Israel, Encinitas. S. E. 3-27.
a. No crop in 1887; full half of the bees in this State are starved to death; b. good prospects for a fair crop; c. the season is cold and late; the sage in some spots is in bloom, but it will be three weeks before there is any flow of honey.

R. Wilkin, San Buenaventura. S. 3-23.
a. 90 per cent; b. it was never better; c. enough for breeding-purposes, so that swarms are beginning to issue.

G. W. Cover, Downieville. N. E. C. 3-25.
a. About one-third; b. good so far; c. honey is coming in. The flow is light.

WYOMING TERRITORY.

G. G. Mead, Ferris. S. 3-27.
a. As I have the only bees thus far known to be in Wyoming Territory, your first queston is easily answered. My bees have all wintered well. b. It is too early to tell in this section what the prospects are for a honey-crop the coming season.

WASHINGTON TERRITORY.

W. W. Maltby, East Angeles. N. W. 3-23.
a. Nine-tenths; b. good. c. We have a mild climate. Honey is coming in moderately.

VIRGINIA.

J. W. Porter. Charlottesville. S. E. 3-31.
Bees have pretty generally come out well. All winter on summer stands here. I hear of no serious losses anywhere in Virginia. Peaches and pears are about to bloom.

FLORIDA.

J. L. Clark. W. 3-26.
a. The losses have been very moderate; b. excellent; c. yes, very rapidly. We shall extract by April 1.

NEBRASKA.

F. Kingsley, Hebron. S. 4-3.
Pollen was brought in to-day. Bees are in good shape.

MISSOURI.

S. S. Lawing, Henderson. S. W. 4-6.
a. About 50 per cent; b. good; c. no honey yet to speak of.

DELAWARE.

S. W. Merritt, Dover. E. 3-23.
a. Comparatively speaking, all; b. very good; c. no.

GLEANINGS
IN
BEE CULTURE.
DEVOTED·TO·BEES·HONEY·&·HOME·INTERESTS.
F.A.Whiting

Vol. XVI. **APR. 15, 1888.** **No. 8.**

TERMS: $1.00 PER ANNUM, IN ADVANCE; 2 Copies for $1.90; 3 for $2.75; 5 for $4.00; 10 or more, 75 cts. each. Single number, 5 cts. Additions to clubs may be made at club rates. Above are all to be sent to ONE POSTOFFICE.

Established in 1873.
PUBLISHED SEMI-MONTHLY BY
A. I. ROOT, MEDINA, OHIO.

Clubs to different postoffices, NOT LESS than 90 cts. each. Sent postpaid, in the U. S. and Canadas. To all other countries of the Universal Postal Union, 18 cts. per year extra. To all countries NOT of the U. P. U., 42 cts. per year extra.

GIVING A LAYING QUEEN TO PARENT COLONY IMMEDIATELY AFTER SWARMING.

FRIEND DOOLITTLE DOES NOT ADVISE IT.

BEFORE me lies a card which reads as follows: "Is the plan of giving each colony a laying queen, immediately after swarming, a good one? If not, why not? Please answer through GLEANINGS." As I do not consider the plan a good one, I will try to give my reasons for so thinking, as requested. For years we have been told that no colony should go without a laying queen for a single day, if it were possible to give them one; and plans of introducing queens which required that the hive should be queenless a few days previous, have been severely criticised. We have also been told, for years, that the bee-keeper who wished to secure the best results from his bees should have a laying queen ready to give to each old colony as soon as they swarmed, as the time lost to them, by rearing a queen, is equivalent to a swarm of bees. Being eager to know for myself all the plans which would give the best results, I have experimented largely; and the truth of the statement, that the time lost to the bees in rearing a queen in natural swarming was equivalent to a swarm of bees, is the first reason that the plan has not been a success with me. If it were bees I were after, the case would be different. With us white clover yields enough honey to keep the bees breeding nicely, and prepares them so that they mainly swarm from June 20th to July 1st. Our honey-harvest is principally from basswood, which blooms from July 10th to 16th.

Now, all who are familiar with natural swarming know that the bees are comparatively few in numbers in the spring, and increase by the rapidly increasing brood produced by the queen, which, in due time, hatch into bees, until a swarm is the result. By giving a laying queen to a colony immediately after it has cast a swarm, we bring about the same result (swarming) as before, or we place the bees in the same condition. The only difference is, that, having plenty of brood, they build up quicker, and are prepared to swarm in a shorter time. As this second swarming, brought about by giving a laying queen, comes right in our basswood-honey harvest, it cuts off the surplus honey; for it is well known that bees having the swarming fever do little or no work in the section boxes; and, if allowed to swarm, the object we have sought after (section honey) is beyond our reach. Having given my experience on this point, let us see how the same colony would work had we not given the bees a laying queen.

Eight days after the swarm has issued, the first young queen will have emerged from her cell, as a rule, when the apiarist should remove all the other queen-cells from the hive, so that second swarming is entirely prevented. In ten days more our young queen is ready to lay, which is about the time basswood begins to yield honey largely. During this period, between the time the swarm issued and the young queen commences to lay, the bees, not having any brood to nurse for the last half of the time, consume but little honey; hence, as fast as the young bees emerge from the cells, they are filled with honey; for bees not having a laying queen or unsealed brood seldom build comb in the sections.

Thus, when the young queen is ready to lay she finds every available cell stored with honey. At this point the instinct of the bees teaches them that they must have brood or they will soon cease to exist as a colony, and a general rush is made for the sections. The honey from below is carried above, so as to give the queen room, and in a week we have, as a result, the sections nearly filled with honey. I have had such colonies fill and complete section honey to the amount of 60 lbs. in from 8 to 12 days, while those to which I had given the laying queen immediately after swarming did little but swarm during the same time. Bear in mind, we are talking about producing comb honey, not extracted. Different locations may give different results; still, I think that nearly all sections give a large flow of honey at a certain period during the season, rather than a steady, continuous honey-harvest the whole season. To such sections these remarks are especially applicable. My second reason is, that after basswood we have a honey-dearth, hence the bees from the introduced queen are of no value, but, on the contrary, become consumers. On an average, it takes 21 days from the time the egg is laid, to the perfect bee. Then if the colony is in a normal condition, this bee does not commence labor in the field till 16 days old; hence, the eggs for the honey-gathering bees must be deposited in the cell 37 days before the honey-harvest ends, or else they are of no value as honey-producers. As the basswood is all gone before the eggs of the introduced queen become honey-producing bees, and as the larger part of them die of old age before buckwheat and fall flowers yield honey, it will be seen that a great gain is made by letting each old colony, having cast a swarm, rear their own queen; for thereby we save the expensive feeding of the larvæ, which are to become expensive consumers of the honey of the hive. Also the chances are, that, when the colony rears its own queen, they will be stocked with younger bees for wintering in November than where a queen was introduced immediately after swarming.

The one point worth knowing above all others in bee-keeping is a thorough knowledge of the location we are in, as to its honey resources, and then getting the largest amount of bees possible at that or those times to gather the honey, having just as few at all other times as is consistent with the accomplishing of this object.

In working so that we get the bees out of season, we have to pay the same price for them that we would to get them, so that each one becomes a producer instead of a consumer. If all who read this article will study their location, and then rear their bees in reference to that location, I think they will find their bees will do as well as their more successful neighbors'. We often hear it said, that one colony in the apiary did much better than the rest, and, had they all done as well, a rousing crop of honey would have been the result. The reason *that one* colony did so well was because it happened to have a large proportion of its bees of the right age to gather honey just in the honey-harvest; and if we can get all in this condition we can secure a like result from the whole apiary.

G. M. DOOLITTLE.

Borodino, N. Y., Apr. 2, 1888.

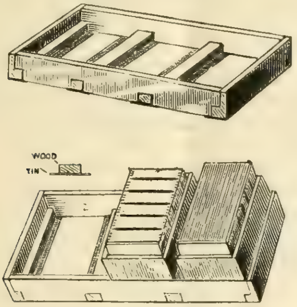
Friend D., I believe it was father Langstroth who first suggested that a laying queen, after the swarm was cast, might be equivalent to bees enough to make a swarm; and he gave it shortly after his discoveries of the movable-comb hive, as one of the advantages to be secured by artificial instead of natural swarming. Now, although you are right, probably, I think father Langstroth is pretty nearly right also; but, as you say, it depends on what one wants to do with his bees. Where a beginner or anybody else is anxious to increase his number of colonies as fast as possible, I think the plan is usually a good one, although it may not secure all that friend L. claimed for it. Where a bee-keeper gives most of his time to his bees it seems to me he ought not to put all his eggs in one basket. I mean by this, that I do not believe it pays for him to restrict himself to comb honey solely, any more than it pays a farmer to raise just one crop. The wide-awake honey-producer ought to be watching the market, and holding himself in readiness to produce bees, queens, extracted or comb honey, whichever the demand or season may make convenient. For a season like the last, when there are many localities that secured absolutely no honey, a good many could sell bees, queens, nuclei, and whole colonies, and I think they could do this at a profit, even if they were obliged to buy feed. I do not believe many localities have such a tendency to overswarming as you often have. In our locality, second swarms are the exception, and occur only during occasional seasons; and a great many colonies will almost every season work right along, storing honey without getting the swarming-fever at all. Your conclusions are right. Every bee-keeper should study his location and make the best of every peculiarity about his location and surroundings.

GEO. GRIMM'S METHOD OF PRODUCING COMB HONEY.

HOW HE MANAGES WITH A MINIMUM OF LABOR.

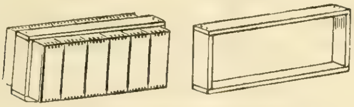
I SEND you to-day by express a sample section-rack. What do you think of it? It is adapted to my purpose, and gives me better satisfaction than any thing else that I have tried or seen. It will not require explanation for a bee-keeper to understand it. If you think there are many pieces, just imagine that the honey-flow is at its best, and tiering up must be resorted to, and see how easily it is done; or imagine that it is about over, and that there are two or three or more unfinished sections in the lot, which must be left on, and see how easily it is arranged. The top boards fit into the space occupied by a ring of sections; you can leave on one or two or more rings full, or reduce to half a ring or less. In tiering up you can add one or more rings as you may desire and circumstances warrant. No matter how few or how many sections you have on a hive, every thing is closed and snug at all times. To appreciate, one must see it used.

Now let me tell you why I said, in an answer to a former question, that raising comb honey is more profitable than raising extracted, and I think I can do this only by telling you the manner in which I now "keep bees." I keep only about one hundred colonies, and at present have even less. My practice monopolizes very nearly all of my time, and the time that I give to my bees is limited to a very few hours a week during the summer.



GEO. GRIMM'S SURPLUS ARRANGEMENT.

Let us start with spring. The bees are brought from the cellar. The first warm day I *don't* look them through. No, they are left untouched till steady warm weather has come. Then I look them over, unite queenless ones, and make sure that they have plenty of food. A little later I clip the queen's wings. Nothing more is done until white clover appears. Upon the first appearance of any honey, a section-rack with sections (prepared winter evenings) is put on every strong colony. An examination of a few minutes every few days keeps me informed as to the progress of all the colonies, and, when needed, sections are given. Now mark: No sections are taken off until both white clover and basswood are gone and nearly all the honey is sealed.



GEO. GRIMM'S SECTION-RING.

Whenever the sections are filled, *ready to seal*, another ring or more, according to the strength of the colony and advance of the season, is placed on top of the others; and this is kept up until the season has nearly closed. Sections are added before the lower ones are sealed, and always on top. The reasons for this are many: They are readily accepted by the bees; in the rush to fill the upper ones, the lower ones are more slowly pushed to completion; in case the flow of honey should suddenly cease, all lower sections will still be finished because the honey has evaporated and is thick, and the cells can be filled from the partly finished upper ones, thus leaving very few unfinished sections, even in case the crop is cut off in its prime; you can see at a moment's glance at the top whether more space is needed; and all the work is simplified. Let me anticipate the objection possibly to be urged, that the lower sections may be somewhat soiled, by saying that this rarely happens when uppers are added before sealing has begun. I have only in rare instances had trouble with it. We will proceed: Swarming has begun; well, my wife hives the swarms (while baby and the dog look on and get stung), and at the proper time I destroy all extra queen-cells. In the meantime honey is being literally "piled up" till the season closes. Then when it has closed I wait for a few weeks longer till nearly all is sealed, and the harvest can begin. And this is how I take off the honey: The cover is taken off; all rings and side boards removed from the sections; the bees mostly driven down into the body of the hive, with tobacco smoke, and all the honey laid bare almost as quick as I can tell it; section after section is taken up, the bees shaken and brushed off, and the load then carried into the shop. Unfinished sections are concentrated into one or more rings as the case may be, and I am ready to go to the next hive.

The body of the hive is left undisturbed, and usually contains more than sufficient good ripe healthy white-clover or basswood honey, to last the colony till spring. Nothing more is now done till fall, when the remaining sections are removed by taking off the whole rack from the hive and placing on a honey-board instead. If the colony has brood and the proper weight, it is not again touched until it is carried into the cellar for the winter. I believe that all the work that I do in the apiary in a year would not make ten full days, and I do all that is to be done except hiving the swarms, taking them in and out of the cellar, and weighing them in the fall. In 1886 I sold over $400 worth of honey from about 75 colonies; last year I sold none, the crop being an entire failure, but I had no work to do either.

This is the reason why I am of the opinion that it pays better to raise comb honey than extracted. And, again, aside from the great labor required in raising extracted honey, the condition in which a colony is left in the fall furnishes the strongest argument against raising extracted honey—usually short of honey, and loaded with bee-bread, a fit subject for feeding and dysentery. It is my experience, at least, that a colony run for comb honey is in better condition for winter, and will winter better than when it has been run for extracted honey; and this must not be left from view in estimating the "cost" of extracted honey.

I have certainly reduced the labor and risk to a minimum, and, I think, sacrificed nothing in the yield; and I think I have demonstrated that a man can make money out of bees, without constant attention.

Since writing the foregoing, GLEANINGS has come to hand. I appreciate the high compliment you paid the Grimms at the end of Mr. France's article on page 165. The foregoing may serve as a partial explanation and answer to Mr. France. I will answer more fully at another time. The description of his work is exceedingly interesting, and it seems as though we had worked together. While I am satisfied that I can teach him nothing new, he has satisfied *me* that he *can* manage 1000 colonies of bees with two assistants, and do it well.

Katie Grimm that was, is Mrs. Hermann Gieseler, of Jamestown, Dakota, no longer a bee-keeper, but the queen of a happy home. GEORGE GRIMM.

Jefferson, Wis., Mar. 9, 1888.

I will explain to our readers, that friend Grimm has six sections, about what we should call a two-pound section, wedged up in these little rings, with a little board at each outside end. The wedges are not shown plainly in the drawings. Well, the little board that covers the six sections also answers as a cover for the opening in the crate when the sections are removed. The broad division-pieces, that hold what we should call the T tins, leave openings for the fingers, so that any section can be picked out with the utmost ease when the wedge is removed and the sections loosened. Friend Grimm's arrangement does certainly afford unusual facility for adding a ring of six sections at a time, and closing all the other openings when the whole crate is not filled. I presume, of course, an outside shell or cap sits over these trays or crates holding 18 two-pound sections.—As friend Grimm puts it, it does seem as if a great many of us are paying out more money in the way of labor to care for an apiary than is absolutely necessary.—Now, is it not possible that your sister Katie will some time have a longing for bees once more? We will send her this number, and may be she will give us a brief note, telling us something about that home, even if it does not mention honey-bees.

WHAT SHALL WE USE FOR THE ONE-POUND PACKAGE?

A PLEA FOR THE TUMBLERS ALREADY IN USE.

GLEANINGS for March 15th is at hand, fresh and up to the times as usual. I have been looking over friend Muth's article on "Extracted Honey in Market." It has been our experience that the tumbler and pail holding 1½ pounds are the more acceptable packages.

I wish to say a word in regard to the tumbler. I see one has been found that holds just a pound. For one, I am sorry, as it means a pecuniary loss to all who use them. Do not understand me as favoring a deception or cheat, but we may just as well as not look a bad matter squarely in the face. We are then better able to manage it.

The mass think the honey costs us little or nothing, and that therefore we can sell it for almost any thing and furnish the package to put it in besides. Now, we must meet this sentiment at the least cost to ourselves possible. The old tumbler holds 14 oz., and, with us, wholesales for 14 cts. Let us make a little calculation:

114 tumblers @ 14 cts.		$15 96
One hundred lbs. will fill this number.		
DR.		
114 tumblers	$3 42	
Labels	30	3 72
	3 72	
Total		$12 24
Now, the 1-lb. tumblers.		
100 tumblers @ 14 cts.		$14 00
DR.		
100 tumblers	$3 25	
Labels	25	3 50
	3 50	
Total		$10 50

Profit in favor of old pattern, $1.74. I've made no mention of freight, as it would be the same in either case, or nearly so; quite a nice little profit when we think how closely we have to figure. Watch me closely, and do not overlook the fact that we do not sell these tumblers as holding a pound, but a package of honey for so much. Askers for the 1-lb. tumblers will say, you customer will want to know, "Do they hold a pound?" Of course, if you are honest you will have to say *no*. "Oh!" they'll say; "I can get a full pound for that." But right here is where you have them—what are they going to put their pound in? You offer them a neat package all ready to take with them, at the same price they would have to pay for the pound—they bother to get the dish, and it must be a dull mind that can not see two cents' worth in the tumbler, for domestic purposes. In this way your glass costs but a trifle over a cent. If you use the other style you would have to furnish the entire glass. It is our experience, that they will give just about so much for the honey; and every thing we do to raise the price comes out of us.

There are two things we must not lose sight of: 1. Honey is not a necessity, consequently we must *tempt* people to buy; 2. We must put the honey in the market in an attractive form and with the least expense possible. It is impossible to please everybody. There is a class that would not be satisfied if we gave them the goods. They would soon want us to give them something for taking them. And there is another class that know when they find a good thing. This is the class that make our best customers. I wonder if there are any others that think as I do. W. M. CORNELIUS.

Lafayetteville, N. Y., March 28, 1888.

Friend C., if I understand your figures correctly, I do not believe I should want that $1.74. You do, however, make an excellent point in favor of using the jelly-tumbler in every-day use; but I think I should prefer to put it in this way: Have both honey in bulk and honey in tumblers for sale. When a customer asks how much a pound, tell him 14 cts., if he furnishes a package. Then explain to him that he can have a tumbler filled, already put up, for 14 cents, but there is not quite a pound. This makes the transaction perfectly fair; and I think nine people out of ten would take the tumbler. Another thing, if all the tumblers used by different salesmen are alike, there is not much chance of cheating by having different prices. That is, we can have an established price, raised and lowered according to demand and supply, for a tumbler of honey. The fact that a tumbler is always convenient to have in the house, rather places it ahead of a bottle or jar; for a tumbler is more called for than a bottle. Is it not so? The bottle has the advantage, however, of being more compact, and of being a neater shape to put in your pocket or to pack in a valise; and I believe it is a little more secure, as a general thing. Even if the tumbler be sealed up with wax by the plan already given, a blow or punch in the tin so as to dent or bruise it will probably loosen the sealing.

BEES AND BEE-KEEPING.

VOLUME II.—PRACTICAL. BY FRANK R. CHESHIRE, F. L. S., F. R. M. S.

THE work bearing the title as above is before us. It contains 650 pages, beautifully printed on a fine quality of paper. Almost the first thing that strikes one in glancing through the work is the beauty and finish of the cuts. The engravings, with hardly an exception, we should judge are original with the author. It is doubtles for this reason that the pictures are so accurate, even to the minutest details. Scarcely a print of a "borrowed electrotype" will be found in the whole work. It seems to be getting to be a fashion among authors and editors nowadays to borrow or purchase electrotypes of engravings which have appeared and reappeared in other books and periodicals. This practice is carried to such an extent that the engravings are often ill adapted to the reading-matter which they accompany.

The character of the volume now before us is pre-eminently international. Its author has drawn from the best ideas and researches from all parts of the world. The book is nearly as much American as it is English. It refers to American inventions frequently, and speaks of American writers and bee-keepers as familiarly as though they were residents of England.

The first chapter is headed, "Bees Under Proper Control." The author considers some of the causes which make bees cross. While upon this subject he takes occasion to disagree with the statement made by father Langstroth, that a honey-bee, filled with honey, never volunteers an attack, but acts solely on the defensive. He says, "I have been fiercely stung by bees darting from a hanging swarm, to which I have offered no kind of violence; and frequent dissections of bees which have volunteered an attack have shown that these are very generally full of honey, while empty ones are more submissive. . . . Their gorging is the result of their submission, and not the converse." In support of his position he quotes Mr. Heddon.

Mr. Cheshire discusses and illustrates only two smokers—the Clark and Bingham (both American). He gives some very fine pictures of cross-section views. The inside and outside workings of the smokers are apparent at once from the engravings, and the whole is made perfectly clear by the descriptions which accompany them. He concludes by saying, "Both smokers are exceedingly effective; but in consequence of the sooty accumulations in the Clark (which difficulty we think we have now removed), he gives his preference rather in favor of the Bingham.

SUBSTITUTES FOR SMOKE.

While on this subject, mention is made of the application of carbolic acid, administered to the bees either in the form of a spray or in fumes from the fumigator. The Rev. G. Rayner, of England, uses a solution made as follows: 1½ oz. Calvert's No. 5 carbolic acid; 1½ oz. glycerine; one quart of warm water. The ingredients are to be well mixed, and the liquids should be well shaken before being used. Mr. Rayner dips a large feather or large brush into the liquid, and sprinkles it upon the bees. We have tried this at the "Home of the Honey-Bees," or, at least, the clear carbolic acid diluted, and have found it to be quite effective, though not, in our opinion, as good as a smoker. We have used a spray-atomizer, and found this to be somewhat better. Instead of using the smoker, we have employed an atomizer with very good success in making examinations of diseased colonies. A spray or two will cause the bees immediately to go down between the frames. We have even made the bees boil out of the hives, so offensive is the acid to them.

Further mention is made of the Webster fumigator, of which we made a report some time ago. It is suggested that crude creosote will make a common smoker much more effective, if a few drops of the latter be poured on the burning fuel, and that the worst Cyprians will succumb to its influence.

Chapter 2 considers hives for bees; and Chapter 3 speaks of hives for bee-keepers. It is to be observed, as Mr. Hutchinson remarks, that Mr. Cheshire makes a distinction between the former and the latter. In Chapter 3 the origin of movable frames is taken up. Huber's leaf hive is illustrated by another fine engraving. It was simply a series of frames without projecting corners, hinged on their back, so as to open like the leaves of a book. Huber also fixed a small comb on the under side of each frame. After giving a quotation from the inventor of this hive in reference to this leaf hive, Mr. Cheshire says: "From this we gather that, practically, the frame hive has been in use for more than a hundred years. But we must not omit to note that Huber made his hive of practical service, foreshadowing many present methods; *e. g.*, swarming his bees artificially by simple division of the colony. . . . The main defect in Huber's hive, the inevitable destruction of bee-life in closing it after examination, remained for a considerable period unremedied until Dr. Dzierzon, of Carlsmarkt, invented, in 1838, and made public in 1845, frames to hang within a box or hive-body, which was manipulated from its side, made to open like a door. In 1851, Langstroth, quite independently of Dzierzon, introduced very similar frames, which he, unlike Dzierzon, manipulated from above, making his roof movable, and thus securing far greater facility of handling, and giving possibilities of management of which the Dzierzon hive was incapable. Although second in order of time, the superiority of his method has commanded for Langstroth first place in connection with the matter."

Further on is illustrated and described the Carr-Stewarton hive—the hive which has been compared, recently, as being similar, in some respects, to the Heddon. Indeed, Mr. Cheshire himself says, that the present Carr-Stewarton hive, with some slight modifications, would make "a very fair imitation of the Heddon hive." In the following pages some of the best English hives are described. Before introducing the Heddon hive a very good illustration of the Bingham hive, together with a description, is made. Of this we made mention something over a year ago. Following this are some very accurate engravings, showing the Heddon hive itself, also transverse and horizontal sectional views, accompanied with a minute description. Mr. Cheshire says, "The principle of allowing a half bee-space above and below, in each horizontal section of the hive, so that the needed ⅜ in. and no more is given in any possible combination, is a salient and new feature of the

Heddon." He, however, does not like the closed ends to the frames, urging, as a reason, that in connection with the thumbscrew they will be subject to more or less shrinkage and swelling, especially in the moist climate of England. In proof of this he cites a case where the Heddon closed end frames, from shrinkage, have actually dropped down, so as to close up the bee-space between the two sections; and that in a climate less subject to change. He suggests, as an improvement, Hooker's frame-corners, made of metal. In conclusion, he remarks as follows in regard to the Heddon hive: "It would be both unphilosophical and unfair thus to dismiss the Heddon without noting that it has called our attention to some points of great moment; and that it has, also, interwoven with old plans, novel methods which will hereafter make their mark." The author remarks further, and which seems to be characteristic of the book: "It is narrowness, not patriotism, that would deny to one of another country his full meed of praise."

Mr. Cheshire thinks it an advantage to have the closed-end frames in the Heddon spaced a full 1¼ inch instead of 1⅜. He says the former spacing (adopted by D. A. Jones) resulted somewhat apparently to Mr. Jones's surprise, in the building of worker-cells to the exclusion of drone-cells. No doubt this would have the effect; and we should judge this would be quite an advantage in securing comb honey by the Hutchinson plan. Some of our readers will remember, that one difficulty encountered in working for comb honey on empty frames with only starters is the building of drone-brood. Won't Mr. Jones's spacing somewhat correct this?

There are many other things that we should like to notice, but our space is too limited to do it in the present issue. We will therefore reserve the rest until our next.

SECTIONS MADE OUT OF SHAVINGS.

FRIEND HARMER'S INVENTION.

MR. EDITOR:—Your publication and illustration of W. Harmer's shaving section appears to me like the thing which is to supply a long-felt want among bee-men. I am but a novice in the business, but have a proposition to offer; to wit, I will be one of one thousand or one of one hundred, or even of ten, who wish to adopt the invention, to deposit one dollar with the editor of GLEANINGS, for the use of the inventor, which shall be considered as payment for the royalty. Friend Harmer has, through the enterprise of GLEANINGS, given us the shaving idea, and the method of constructing the sections. A test in his hands has demonstrated it to be a success, both in their adaptation to the purpose designed, and the preference given by the public to purchase small lots of honey, easily and cleanly handled. Is not the inventor as clearly entitled to a royalty from those who adopt his invention as if it were covered by letters-patent from the United States? Herein is my dollar deposit. I wish he had advised a better kind of wood out of which to make shavings. JOHN CADWALLADER.

North Vernon, Ind., April 5, 1888.

Many thanks, old friend. We gladly accept the dollar, and place it to friend Harmer's credit. Perhaps I should say that I have already given him ten dollars for his ideas and his article; and if any of the rest of you feel like rewarding him for his experiments and labor, you can send the money directly to him, and we will, if you wish, print the names of those contributing. By looking at some of the little sections now standing on my table, I see they are made of pine shavings. They are so solid and substantial that, by wrapping them up in a little paper, you can easily carry them safely in your coat-pocket. I think it is surely a step in the right direction, to hand over something to these friends who have made valuable contributions to our industry. Friend Harmer is not very well off in this world's goods; and whatever is given him will not only give him timely help, but will make him feel kindly toward his fellow-men.

Here is something from friend Harmer himself in regard to these small sections, and some other matters:

I wish to thank you very much for the trouble and time you have taken. I know you will be willing to make two or three corrections in your next number. One is, that the foundation is not glued in, and the gluing at the corners of the sections is done with the point of a darning-needle instead of a camel-hair brush.

In regard to wintering my bees, which you spoke of, I would say that I winter my bees in a five-frame Langstroth box with loose top and bottom, which are light, easily carried, and take up very little room in the cellar, besides keeping the bees more compact. Ordinarily I find five frames filled with honey to be sufficient for a strong colony. I find that, if a colony in one of these boxes with five frames weighs 40 lbs. in October, it has plenty of stores until the next May; and I find these boxes very handy for building up colonies in. I put two on one stand, facing different ways. I use the eight-frame Heddon-Langstroth hives, with fixed bottom, which I find are large enough for this part of Michigan, by tiering up. As they are not in use in winter, it gives ample chance through the winter for being cleaned up and painted, which task I have just completed for this season. I do not want a tight bottom for wintering. This is one reason why I adopted this box, so by having one extra bottom I lift all my bees on to clean bottom-boards, about three times at intervals through the winter. This gives a good opportunity for knowing how the bees are getting along, and is very easily done.

WALTER HARMER.

Manistee, Mich., Apr. 5, 1888.

Thanks for your corrections, friend H.; but you do not even now tell us how you fasten in the foundation. Is it with *melted* wax? I am still more interested in your small light boxes for carrying bees into the cellar; and your idea of changing the bottom-boards occasionally while they are in the cellar, I like very much. Some may urge that it may be too much disturbance; but your success this past winter is an argument in their favor. This gets rid of the dead bees at different times during winters, and is not very much trouble either.—I agree with you, that five L. frames are sufficient for almost any colony.

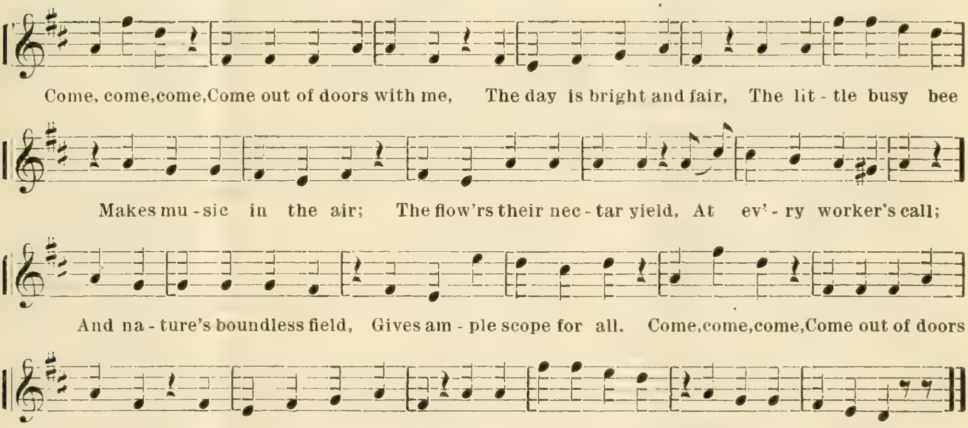
SONGS FOR BEE-KEEPERS.

W. F. CLARKE RESPONDS TO MRS. AXTELL'S CALL.

I THINK Mrs. Axtell's suggestion, that bee-keepers ought to have some songs and music relating to their occupation, a good one; and in response to her invitation, made to me by name, which I am too polite to decline, I have been courting the muses with the following results. First, a song suitable for home use, a social entertainment, or bee-keepers' convention. Second, a song that may "make the welkin ring" when the singers are busily at work in the apiary, for I believe in singing at one's work, also in singing out of doors as well as indoors. In fact, music never sounds so well anywhere else as it does in the open air. Third, a song, or, perhaps, it may be more appropriately termed, a hymn, for use at conventions, where I think it is eminently proper that at least part of the singing be of the nature of worship.

The first song is adapted to a sweet, simple air which used to be very common and popular in my young days, but, like many good old-fashioned tunes, has gone out of vogue—so much so that I can not find a copy of the notes at any music or book store in this city. I have no doubt that in such a well-appointed printing-office as the one at the "Home of the Honey-Bees," there is a font of music type, so I have recalled the air from the archives of memory, and send herewith the score, not executed very professionally, I am afraid, for I am not a scientific musician, but I think any compositor who understands setting music type can make a readable job of it, so that Mrs. Axtell can go right to her parlor organ, when she gets the number of GLEANINGS containing it, and try the song without delay.

Air: "COME TO THE SUNSET TREE."


Come, come, come, Come out of doors with me, The day is bright and fair, The lit - tle busy bee
Makes mu - sic in the air; The flow'rs their nec - tar yield, At ev' - ry worker's call;
And na - ture's boundless field, Gives am - ple scope for all. Come, come, come, Come out of doors
with me, The day is bright and fair, The lit - tle busy bee, Makes mu-sic in the air.

THE BEE-KEEPER'S SONG.

1.

Come, Come, Come!
Come out of doors with me,
The day is bright and fair,
The little busy bee
Makes music in the air;
The flowers their nectar yield,
At every worker's call,
And nature's boundless field
Gives ample scope for all.

Chorus.

Come, Come, Come!
Come out of doors with me,
The day is bright and fair;
The little busy bee
Makes music in the air.

2.

Come, Come, Come!
Come to the busy hive;
Hark to its cheerful hum;
With work and stir alive,
The insects go and come.
Along th' alighting-board
Hurry their nimble feet,
That quickly may be stored
The precious liquid sweet.

Chorus.

Come, Come, Come!
Come to the busy hive;
Hark to its cheerful hum;
With work and stir alive,
The insects go and come.

3.

Come, Come, Come!
Hear what the toilers say:
"Let us improve each hour,
And lose no time in play,
But put forth every power.
Soon will the season pass;
Our harvest time is brief;
Winter ere long, alas!
Will nip each flower and leaf.
Come, Come, Come!
Let us improve each hour,
Of every summer day,
Exert our utmost power
And lose no time in play."

4.

Come, Come, Come!
And see the merry swarm
Rising in the air;

Behold the cluster form
Upon the tree-branch there.
Set the new hive in place,
Gather the pendent mass,
Presto! with rapid pace,
Into their home they pass!
Chorus.
Come, Come, Come!
And see the merry swarm
Rising in the air;
Behold the cluster form
Upon the tree-branch there.
5.
Come, Come, Come!
Winter is here at last!
Over the dreary scene
A fleecy robe is cast,
White with its glistening sheen.
The bees are fast asleep,
Clasped in each other's arms;
And their long vigil keep,
Secure from all alarms.
Chorus.
Come, Come, Come!
Behold the bees asleep,
Clasped in each other's arms,
And calm their vigil keep,
Secure from all alarms!

The second song is not set to any particular tune, though I think there is one with the title, "Cheer, Boys, Cheer!" But I do not know the words of it, and doubt if my ditty would fit. Perhaps Mrs. Axtell, Dr. Miller, or some other member of the fraternity or sisterhood of bee-keepers can find or make a tune for it, if it is thought worthy of being wedded to music.

A SONG FOR THE HONEY-HARVEST.

1.
Cheer, boys, cheer! the bright honey rolls in;
Idleness now were a shame and a sin;
The bees are doing their "level best,"
And working without a moment's rest.

2.
The fields are purpled with clover bloom;
Give every hive lots of storage room;
The linden-blossoms will soon be here—
Honey is blooming—so, cheer, boys, cheer!

3.
Early and late do the workers fly,
So help them along, and "mind your eye;"
Never heed a painful sting or two,
But do whatever there is to do.

4.
Hive the big swarms and set them to work,
For never a bee will strike or shirk;
The brief honey-harvest now is here,
So, "work with a will," and cheer, boys, cheer!

The third song or hymn, intended for use at conventions, will go to "Old Hundred" or any long-meter tune that may be thought most appropriate, and closes with the familiar doxology, which was joined in right heartily at the close of the Cleveland bee-keepers' convention some years ago.

A SONG OR HYMN FOR BEE-KEEPERS' CONVENTIONS.

1.
Once more we in convention meet
And cheerfully each other greet,
Thankful to that almighty Power
Which has preserved us to this hour.
2.
We worship at the lofty shrine
Where Wisdom dwells, and Love divine,
Whose wondrous traces plain we see
When working with the busy bee.
3.
Like bees, may we our part fulfill,
Obedient to the perfect Will;
Wisely spend life's little day,
And then, contented, pass away.
4.
We would some hoard of sweetness store,
Of value when our life is o'er,
That those whom we may leave behind
May cause to bless our memories find.
5.
Love and good fellowship be here,
Our weary, wistful hearts to cheer,
With wisdom, which shall help us on,
When we back to our homes are gone.
6.
Praise God, from whom all blessings flow.
Praise him, all creatures here below;
Praise him above, ye heavenly host;
Praise Father, Son, and Holy Ghost!

WM. F. CLARKE.

St. Thomas, Ont., March 13, 1888.

FOUL BROOD.

SALT FOR ENTRANCES FOR KEEPING DOWN VEGETATION.

I AM sorry to say, I am badly discouraged. The first of the winter I had 26 colonies; 21 were in good condition. I have lost 15 up to date, all by foul brood, and I may lose 2 more. I have sprayed them with a solution of carbolic acid. I believe it prevents its spread, but does not cure. I fear I shall lose all. I have become so discouraged that sometimes I think of packing all the hives, bees, and honey together, and put plenty of wood around them and burn them up and start anew; but, on the other hand, I hate to do it. Could I put salt on the ground around the hives and prevent grass and weeds from growing around the hives? About how much salt would it take and not kill the soil?

J. J. KEITH.

Louisville, Ga., Mar. 26, 1888.

Carbolic acid alone will not cure foul brood, according to our experience, and we have tested it pretty thoroughly. As you say, it does prevent its spread, and should be used in connection with the starvation plan. We don't think any thing will do but to scald the hives, burn up the combs, and allow the bees to remain without food for 48 hours or such a matter. We have felt tempted sometimes to burn all the infected colonies. The starvation plan, however, will answer, and save considerable expense besides.—Salt will keep the weeds down in front of the entrances, and around the edges of the hives. About half a handful in front of the entrance will be sufficient, and the rest can be sprinkled around the hive if you desire to keep the weeds from it entirely. Soon after the first rain you will find the grass turning brown. In a few days more, scarcely any vestige of vegetation will be left where the salt was sprinkled.

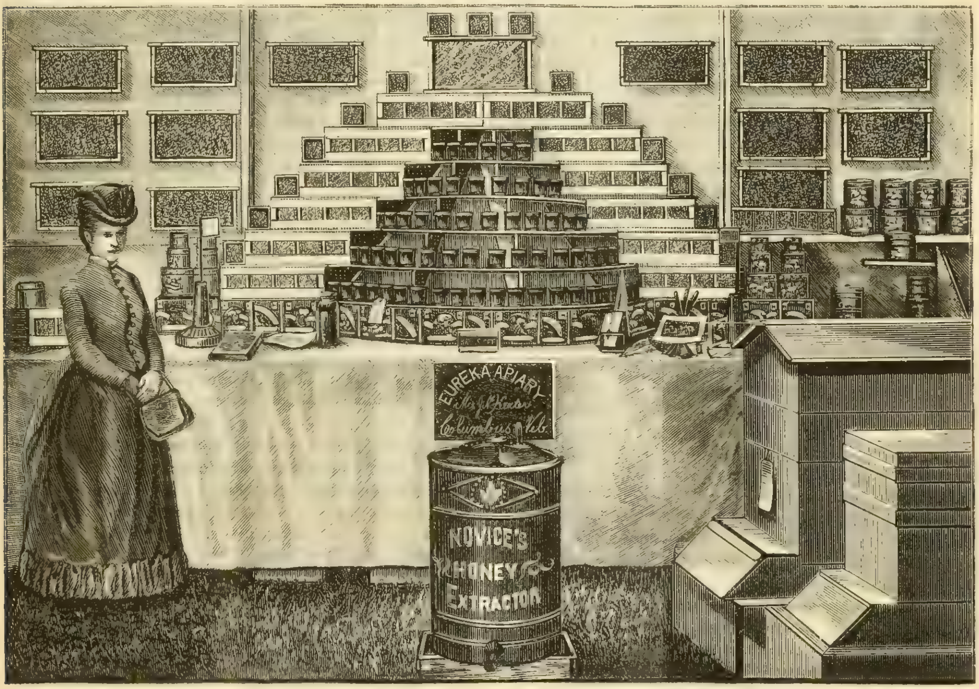
A NEBRASKA HONEY-EXHIBIT.

WHAT A WOMAN CAN DO IN THIS LINE.

MR. ROOT:—This cut represents an exhibit of honey and apiarian supplies made by Mrs. J. N. Heater, at the Nebraska State Fair, held at Lincoln in the fall of 1887. The exhibit of honey occupied a side table four feet wide and twenty feet long. On the center of the table, and against the wall, was placed a half-round cone-shaped stand, six feet in diameter and seven shelves high, the height of each shelf being the same as the height of a shipping-case. Around the lower shelf, and extending thirty inches to each side, was a facing of the Jones 6-lb. honey-labels, forming a base. On either side of the stand, and meeting over it, were shipping cases filled with sections of comb honey, one end of the case resting on the shelf and the other on the case below. On top of all this was a glass case containing one brood-frame of sealed honey, showing where and how the extracted honey is obtained. On the outer ends of each shipping-case, which also formed steps, was placed a section of honey in those neat paper packages ready for the customer. Tin pails of extracted honey, neatly labeled, and ranging in size from one pint to two quarts, were tastefully arranged on the ends of the base at each side. Extracted honey in glass pails and jars was placed on the shelves of the stand. A jar of honey vinegar, clear as water, may be seen at the left of the stand; on the right, an easel holding a picture of Eureka Apiary in winter quarters, and a column of golden wax supporting flags of foundation on either side. A number of periodicals and books on bee culture, with samples of labels, lay on the table in front. On the wall, on each side and above the honey, were hung partly to full drawn brood combs in which had been used starters to full sheets of foundation, taken from colonies in different conditions, showing where drone or worker comb will be built when not furnished with full sheets of foundation.

To the right, on the floor is placed a single-wall and a chaff hive, with fixtures complete, to show the manner in which the brood-chamber and surplus arrangements are manipulated. The chaff hive was awarded a meritorious premium, not having been entered for a premium.

To the left, but not shown in the cut, was the display of bees, queens, drones, and the different implements used in the apiary, consisting of comb foundation, smokers, honey-knives, sections, drone-traps, foundation-fasteners, bee-veils, etc. Of this portion of the exhibit, the glass case holding one frame of brood in all stages, and covered with bees, a queen-cage containing a queen and her attendants as prepared for shipping, and an Alley drone-trap filled with drones as caught from the hive, attracted the most attention from the crowd which continually thronged that corner of Horticultural Hall. Those living illustrations awakened more interest than a whole book explaining them would have done. In front of the table, and on the floor, was placed the Novice honey-extractor, which received the widest range of comments of any thing in the exhibit, being called every thing from a churn to a washing-machine. The Lincoln *Daily State Journal* gave the following notice of this display at the time:



MRS. J. N. HEATER'S HONEY-EXHIBIT, AT LINCOLN, NEBRASKA.

"This exhibit by Mrs. J. N. Heater, of Columbus, Neb., consists of comb and extracted honey, wax, implements, and apiarian supplies. It is tastefully arranged, striking in appearance, and is admitted by all judges to be the best ever made in the State.

Various articles of the display were awarded first premiums; and the general verdict of all is, that as a bee-keeper Mrs. Heater has no equal in Nebraska. She has studied the science for years, and has embarked in the enterprise in a purely business manner. Such an exhibit as this is the best means of getting before the people the fact that, for bee-keeping, the natural resources of Nebraska are among the foremost of those of any of the States of the Union."—*Lincoln Daily State Journal.*

We congratulate our Nebraska friends on having so enterprising and go-ahead woman as Mrs. Heater; and we hope her example may prove contagious. The photograph she sends us gave so many ideas in regard to arranging and getting up an exhibit for fairs, that we thought it best to have it engraved. No wonder that people flocked around her exhibit and asked questions. If she stood at her post and answered them all, I am inclined to think that she decided, before the fair was over, that it was harder work than managing a large apiary. We should be very glad indeed to get further communications from the lady in regard to the honey-yield in Nebraska, and of the way in which she manages. We will explain to our readers, that Mrs. Heater is also a supply-dealer, and she will no doubt be glad to send her price list to all who are curious in regard to her ways of working, and of her success in bee culture.

SECTIONS WITH SLOTTED SIDES.

ARE SECTIONS WITH OPEN SIDES AS WELL AS TOPS AND BOTTOMS GOING TO BE ADOPTED?

THE advantage of openings to allow communications between sections laterally, arises from the fact that the more free the communications the more nearly we approach the condition of having the bees all in one mass. It is pretty well established, that a very small body of bees isolated, can accomplish but little. One hundred colonies, or, rather, nuclei, having one hundred workers each, would not accomplish as much in the course of a season as a single colony made by uniting the hundred. In the days when holes were bored in the tops of hives, and surplus boxes placed over, a 20-pound box was filled in not so much greater time than a 5-pound box. A large cluster is needed to keep up the heat. Take a T super a foot wide, and let us see what are the conditions. With sections having no opening at the sides, six of them placed side by side make a box, at least a cavity, 4×4×12 inches. Now put in separators, and we have the space cut up into six smaller ones, each 4×4×2. Now, if there was a recognizable difference between the work done in 20-lb. and in 6-lb. boxes, will there not be a serious loss in shutting up bees in 1-lb. boxes?

But it is not always safe to reason in this way. On actual trial, I think the bees have shown no such difference. If we look a little closer we shall see that the conditions in the two cases are not alike. The 20-lb. box was a thing by itself, as was the 6-lb.; and it is not improbable that the working difference in the two cases arose from the fact that proportionately fewer bees were in the outer and colder part of the cluster in the 20-lb. than in the 6-lb. box. In other words, dividing them up into small clusters made the bees colder. But in the 1-lb. boxes or sections we have quite a different state of affairs. Suppose we turn our attention for a minute to one of the central sections in a super having separators and no slots in the sides of the sections. Let us take away the wood from the sides of the section, making slots there. Have we thereby made that section any warmer? Hardly. What have we gained by the slots? We have given free communication from side to side. But what advantage is there in side communication? There is free passage up and down for all the bees that can work in the section, and what will be gained by giving the bees a chance to travel further by a circuitous route? Of course there is a chance that I may be wrong, that I have left out some important factor in the problem; but just as it looks to me now, the slots add nothing to the heat of the cluster, and give no freer access to the sections.

FOSTER'S SUPERS.

A correspondent asks me to give my opinion of Oliver Foster's system as compared with raising comb honey in T supers. It is not easy, always, to make a fair comparison between two things, if I am very familiar with the workings of one and have only read about the other. I will try, however, to answer as fairly as I can from my standpoint. My correspondent mentions two advantages over the T super that appear to him in Foster's arrangement.

"First, Foster's case allows the use of side openings to sections, which I think must be a decided improvement." So does the T super allow it just as well. I tried sections with side slots two or three years ago, and in practice did not find the advantages claimed for them theroretically, so I gave them up, not because the T super was not suited to their use, but because I did not consider them desirable—at least not in *my* hands.

The second supposed advantage is the absence of bee-space between the honey-board and sections. I suppose the T super could be made to sit directly on the honey-board without a bee-space between; and although some like this, I think the majority of bee-keepers do not. I know that I kill more bees than I like with nothing but the edges of the supers touching, and the difficulty would be increased by dispensing with bee-spaces.

I have no doubt that, taken as a whole, friend Foster's appliances in his hands are a success. I like the T super because it is cheap, simple, and easy to handle. The matter of cheapness would not matter so much if I were sure I would not change again, for a well-made super ought to last a number of years. But judging by the past I have no assurance that something quite different and very much better may not come up within a few years, for which the T super shall be thrown aside.

C. C. MILLER.

Marengo, Ill.

Friend Miller, I believe I pretty nearly agree with you. There is no super before our people that combines all the advantages we could ask for. Now, I hope our inventive friends will not send us by express a great lot more for us to pass an opinion on. In fact, so many have been sent in already that I dread to see a new one. One reason why I dread to see them is because the greater part of them are too much machinery. We must have something simple, tight, and strong. Another thing is, almost every thing that is sent in we have seen before, and sometimes the same thing is sent in a great many times. One objection to the T super for open-side sections is, that it brings the sides of the sections a little way apart, and the bees will be sure to stick propolis clear round, which causes them a great amount of labor, and, worse still, the bee-keeper has a tremendous task before him to scrape this propolis all off again. Friend Foster's arrangement remedies this, I believe; but his case is a good deal of machinery, and I am afraid it would not be tolerated by the average bee-man. May be I am mistaken. I hope I am, any way. The T super seems at present to be the simplest and best adapted to the general bee-keeping public. We are now very anxious to get reports in regard to the practical workings of open-side sections and the other kind. We want reports from those who have tried them side by side, expressly to see if the open-side section does give more honey in the same length of time.

FALSE STATEMENTS IN REGARD TO THE HONEY BUSINESS OF OUR COUNTRY.

As a protection to our bee-keeping population, we propose in this department to publish the names of newspapers that persist in publishing false statements in regard to the purity of honey which we as bee-keepers put on the market.

WE had fondly hoped that this department could be dropped, as so many of the papers which had given place to these false reports had kindly and fairly corrected the wrong impressions, at least so far as a wrong statement can be corrected. It seems, however, that the disease is breaking out again, and very likely nothing but eternal vigilance will keep it down. See what our friend below suggests:

Mr. Root:—Please permit me to make the following suggestion: Print on a small card the history of the Wiley lie in regard to artificial comb honey. On the same card make an offer of a sum of money (which I *think* you did in GLEANINGS), to any one who will direct you to a place where such honey is artificially made. Give bank reference. Sell these cards to us (those who hate misrepresentation); and when we hear a person make the statement that comb honey is made by machinery, we can hand him your card and that will "settle" him. Within a week I have heard the statement about artificial comb honey three times, each time by a (to me) stranger. One party making such a statement was a Johnstown commission man, who told another person within my hearing that he had sold "tons" of such honey. I should be pleased to hand him the card suggested. GEO. M. WERTZ.

Johnstown, Pa., Jan. 25, 1888.

I believe you have hit it exactly, friend W. I somewhat dislike to offer sums of money; but in this case it seems as if nothing short of a statement, backed by some responsible man, would answer the purpose. I do not believe, however, that I would notice the Wiley falsehood enough to give it publicity. Suppose we print a card something like the following:

TO WHOM IT MAY CONCERN.

In view of the false and damaging statements to the honey-business, in regard to making comb honey by machinery, etc., I have thought best to silence all such falsehoods as they come up, by the following offer: I will pay $1000 in cash to any person who will tell me where comb honey is manufactured by machinery; or I will pay the same sum to any one who will find manufactured comb honey on the market, for sale. I am as safe in making this offer, dear friends, as I should be if it were strawberries or hens' eggs. It never has been done, and it never will be done. If you wish to know whether I am responsible for the above amount or not, go to any bank and ask them to quote my standing in Dun's or Bradstreet's Commercial Agency, or write to the First National Bank of Medina.

A. I. ROOT,
Editor of Gleanings in Bee Culture,
Medina, O.

Instead of charging for these cards, we will furnish just as many of them to any bee-keeper or anybody else as he can make use of; and may be a prompt refutation of these scandalous falsehoods, keeping them in public, as it were, may not only have the effect of putting down this lie, but perhaps we may induce our traveling friends who are so fond of making people stare, to conclude that telling lies is dangerous business in this present progressive age of the world. Here is something from another friend:

A. I. Root:—My bees are much discouraged since reading an article on bogus honey, in the *Grocers' Vindicator*. Last season was a poor one, and was very discouraging to them; but the article below caps the climax, and crowns all. I put 94 colonies in winter quarters, and up to this time I have not lost a colony; but from this on my home will be in Blasted Hopes. J. F. MICHAEL.

German, O., Feb. 29, 1888.

Below is the clipping referred to, from the *Grocers' Vindicator*, published semi-monthly at 25 Michigan Ave., Chicago, Ill.:

ADULTERATED HONEY.

The experts are in the "honey-humbug business," of which fact, perhaps, some of our readers are not aware; but for a long time there has been comb honey on the market which looks very fine and inviting, but it contains very little of the pure honey. It does seem strange that an article like honey should be allowed to be meddled with and so completely adulterated as to contain but a portion of the real honey; but such is the case, and to that extent that we would say to our readers that it is hardly safe to expect the pure honey from almost any source. The following is interesting; read it:

"I never saw honey look like that," remarked a reporter, who had ordered toast and honey for his breakfast. I "never saw a honey-comb look so white or so uniform." "Well, sir," replied the waiter, "I'll let you into the secret. That is manufactured honey. The comb is manufactured now of a white wax. Molds are made to the shape and size required, and the heated wax is poured in and becomes an imitation honey-comb. A piece of this comb is placed in the jar, and the syrup poured in. They can't make a good imitation, though; nearly every one who calls for honey detects the imitation. The wax is whiter, and then it is unpleasant if it should get into the mouth. It is much cheaper than real comb honey, and sometimes the supply of honey runs short, and the manufactured honey has to be used."

Now, friends of the *Vindicator*, inasmuch as you have done quite a little damage to innocent men by heedlessly giving publicity to falsehood, will you not do your best to promptly retract it? In regard to your concluding item, I would call your attention to the fact that, during the recent short crop, in consequence of high prices manufacturers of the bogus article which you presume exists *did not* take advantage of the state of affairs and run their machinery night and day. The editor of the *American Bee Journal*, of your own city, called attention to this fact: When the pure article furnished by nature could not be brought forward, would it not seem rational that such a time would be just the time for a harvest for the manufacturers? Here is the same item sent in by another friend, clipped from the *Mail and Express*, of New York:

> *Mr. Root:*—On page 907, GLEANINGS for 1887, you are reported as having said that "comb honey can not be made by men, but only by bees." It seems from the clipping inclosed that there is a mistake somewhere. Where is it? H. A. HUNTINGTON.
>
> Poquonock, Ct., Feb. 21, 1888.

Friend H., the mistake is in the *falsehood* your printed slip tells. The slander on our industry has been refuted, and the refutation published over and over again; but it seems that it is destined to continually crop out.

In the same line we find in the *Health Journal and Temperance Advocate*, of Oakland, Cal., the following, extracted from *Good Housekeeping*:

> Some curious facts were revealed by the packers of canned goods in private conversation. "You would not think the parings and cores of apples of any use, would you?" said one of the packers to a friend. He then continued: "Well, a fruit-packing establishment makes use of every thing, like the pork-packing factories, which save every thing except the pig's grunt. When we are packing and drying apples we have tons and tons of parings and cores. These we sell to the makers of jelly. All kinds of jellies are made of the material. Every bit of it is apple with some essence in it. But that is not the sole use of apple-parings. Occasionally we keep them so long that they can not be converted into jelly. Then we sell them to the makers of strained honey. All the 'strained honey' that you see in the market is made of it."

Now, it is possible that some sort of jelly may be made from stale apple-parings; but it is *not* possible that all or any of the strained honey on the market is made in this way; and it is a shame that papers like *Good Housekeeping* and the *Temperance Advocate* should allow such statements to go out in their pages. Is it possible, friends, that you know nothing of the recent developments in the way of bee-keeping, especially in California? The liquid honey to be found in our markets comprises *hundreds of tons;* and it is just as pure and wholesome as the barrels of flour that fill our stores and warehouses. If you are friends of the truth (and we suppose you are, being publishers of such journals) we hope you will make some apology for such a statement as the above—that "all the strained honey we see in the market is made of stale apple cores and parings." What are your readers to suppose the world is coming to? and what will journalism come to if you continue to place before your readers such *absurd falsehoods?* If it was through carelessness and inadvertence that the above was allowed to go into print, will you not have the kindness to so state it, that you may undo, so far as possible, the wrong you have done?

MANUFACTURED (?) COMB, ETC.

SOME VALUABLE SUGGESTIONS FROM M. H. TWEED.

WHO is responsible for the very general belief in the cities, that comb honey as well as extracted is adulterated? I answer: 1. The want of general information of a reliable character about the manufacture and use of foundation comb; 2. One bee-keeper uses foundation; his neighbor does not; and when the latter goes to sell his crop he says this other man uses manufactured comb, but he does not. For example, I noticed recently a large label on the outside of a case of comb honey, as follows: "Pure honey. I guarantee this honey to be absolutely pure, and gathered by the bees directly from the flowers of the field. C. M. Gibbens, Winchester, Va." Now, does not that plainly say, "All the comb honey you see is not necessarily pure? I give you pure honey, but all bee-keepers do not." Last year a bee-man in this vicinity went to some of my customers and told them that my honey was manufactured comb, and his was not; that most of the bee-men had got to cheating the people now by having the comb made. 3. The general desire of traveling salesmen to appear smart. A case in point will illustrate what I mean:

A short time ago a drummer, traveling for a Baltimore fish-house, was standing in a store as I was delivering honey in glasses, comb and extracted together. He picked up a glass and asked if it was pure, with the air of a man who thought that he knew it was not, but simply wished to see if I would tell a lie about it. I answered him that it was pure, and asked if there was such a thing as manufactured comb honey. He looked at me as though he thought I was a fool to ask such a question, as he replied, "Certainly they do."

I said, "My friend, have you seen it made?"

"Yes, sir," he replied.

I then said to him, "I am glad I have met you, for I have heard that story about manufactured comb for several years past, but you are the first man I have come across who has seen it done. Now, where did you see it made?"

"Out in Ohio," was his answer.

"Ohio! that's a big place. Where did you see it made there?"

He replied with some hesitation, "On the Western Reserve."

I said, "That is a big place too; where did you see it made on the Western Reserve?"

With a great deal less confidence he replied, "In Orrville."

"Orrville?" I said, "that small country town? I have been there; who makes it there?"

Being fairly cornered, he replied, "Well, there was a man told me he saw it made there."

Now, you see had I not cornered him he would have explained to the grocer all about how the comb was manufactured. You will easily see that his knowledge came simply through some man in Orrville having been seen making foundation comb; and by the time two or three smart fellows repeat it, the cells are completed, filled, and capped.

A WORD IN FAVOR OF THE MUCH-ABUSED EXPRESS COMPANIES.

Are you sure you are right when you say they are *solely* responsible for the large percentage of broken honey in the market for several years past? I know they handle more than honey care lessly in many cases; but let us see if the man who ships the honey may not in some cases be to blame in the matter. Have you ever thought how much more securely the bee fastens the center of the comb, when you leave the building of it all to himself, than the average bee-keeper sticks in his sheet or starter? Now, a bee-man who packs in the center of each case three or four combs not filled out and fastened only at the top, and that a piece of foundation merely stuck in, and then expects the express company to carry it without breakage, is a very unreasonable man. Another evil is, frames poorly put together. These two causes are doing much toward making the one-pound comb unpopular.

CANDIED HONEY.

In last GLEANINGS I notice a wide diversity of opinion about the candying of honey. Last year at this time I could go to a commission house and find plenty of honey not candied. I can not do that today, unless I may find a little blue thistle from Virginia. The reason of that is, that the clover in this section being a failure last season there is scarcely any thing in the market but linden, and you can not find a pound of that not candied to some extent at this season of the year. Then, again, I have a lot of white sage from California which was shipped to Boston, and from there here, which has been exposed to the cold on the way and while here, and it shows no sign of candying. Some years ago I got from a party in the Shenandoah Valley some blue-thistle honey which was not candied the next May; also some gathered from late fall flowers taken out of the same hives a month later than the other, which was candied solid in the comb before January 1st. Then in extracted honey I have seen it two years old and not candied, and I have seen linden honey candied solid within three months from the time it was extracted. I think there is no question about one kind of honey, either in comb or extracted candying much more readily than others. It may be, that an even temperature of 70 or 80° would prevent it; but how many of our bee-men keep their honey in that way? M. H. TWEED.

Allegheny, Pa., March 8, 1888.

Friend T., I agree with you about marking comb honey "Warranted Pure." I have seen it, too, and it always pains me. I do not believe I would put even the word "honey" on it at all. If there is anybody who does not know what comb honey is when he sees it, it is certainly somebody who can neither read nor write. Simply say, "From the apiary of John Brown, Medina, Medina Co., O.," and let the contents of the case tell the rest of the story.—You are right in regard to traveling salesmen. This class of individuals do a great deal toward spreading information of all kinds; but, unfortunately, they are fearfully given to startling stories, to make people stare and wonder, without any regard as to whether the stories are true or not. You can easily make them back down, especially when they find you are at home on the subject.—I am glad to hear you take up a little on the side of the express companies. This matter of making secure packages is a very important one. Perhaps reversing will pay on this account alone, if no other, for it makes an absolutely sure thing of it, if the reversing is done at the right time. You remember what I said on page 843 about a crop of beautiful honey attached only to the top-bars of the sections.—I have been for years aware of the fact that some honey candies, and some does not; and I think that the same kind of honey may behave differently at different seasons, to some extent.

THE GIVEN PRESS.

DR. MASON SPEAKS SOME GOOD WORDS FOR IT.

I HAVE been using a Given press for several years, and my experience with it leads me to think more and more of it each year. I would not begin to exchange it for the best roller mill.

I don't remember when I began to use wired frames, and I have used none but wired ones since I first began to use them, and I should be sorry to be obliged to do without them. When I began their use I put on the foundation by hand; and although it could be done very rapidly, one thing was exceedingly annoying; for I love to see straight combs. In pressing the wires into the foundation it was stretched a little by the pressure at each wire, and made the foundation wavy. I took a good deal of time straightening it, as the bees worked it out, but I have no such trouble with that made on the press.

I think it is not possible to make as nice *looking* foundation on the press as can be made on a mill; but the septum can be made just as thin as on rollers. With rollers, only a certain amount of wax can pass through, making the side walls always of the same depth, but their depth on the press depends on the thickness of the sheet of wax; and as it is sometimes difficult to get the sheet of the same thickness throughout, the side walls are very apt to vary slightly; but as looks are not what we are after in foundation for the brood-chamber, that does not matter.

I do not make foundation for sale; but some of my neighbors prefer the Given, and come to me for it—some with and some without wired frames—not because it is more convenient, for there is a supply-dealer here who makes thousands of pounds of foundation each season.

I can make the foundation right in the wired frames almost as rapidly as it can be made on the rollers, and then it is ready for the hives; so, taking into account the fastening in the roller foundation, the press is more rapid, and since I began to use the "washing fluid" on the die, of which I wrote in a previous number of GLEANINGS, it is "just but fun" to make foundation on the press.

BEE-STING REMEDIES.

In addition to what I said in GLEANINGS, p. 618, I should like to say that we have found oil of cloves a very good remedy. Mrs. Mason was stung a short time ago; and, not having any oil of cinnamon at hand, I applied oil of cloves, and it prevented swelling entirely, and no soreness followed, as it usually does on her; and yesterday our baby got stung on the fleshy part of the arm, and an immediate application of the oil prevented any swelling; but the arm was sore for some time after. To be of value, it seems that the application must be made almost immediately after the sting. It is not for ourselves —that is, bee-keepers—that we care for such remedies, but we don't like to see the members of our families, and our friends and visitors to the apiary, with cheeks and nose enlarged, or eyes swollen shut, so that we can scarcely recognize them when suffering with pain. It is all right for friend Doolittle to "groan once or twice and dance a little," and for Mrs. Harrison to use "a wet-sheet pack;" but every one doesn't enjoy such proceedings.

THE NEW JAPANESE BUCKWHEAT.

I got a fourth of a pound of you last spring, and sowed it on rather poor, sandy soil, and the yield is about six pounds. Of course, I can not tell how much honey it yielded, but it was a beautiful sight to see the bees "just flock" on the blossoms. Sometimes two bees would attempt to explore the same blossom at the same time. I have seen more bees on the Clarkia and on the Chapman honey-plant, but never with the enthusiasm they showed on the buckwheat. I've just stood and laughed to see them go for it. No, I didn't lie down and laugh, for it is too much work to get up with my 230 pounds of "corporosity." I doubt not but the yield of buckwheat, honey, and *laughter*, would have been much greater had not the drought been so severe.

BEES IN WINTER QUARTERS.

As an experiment I put a few colonies of bees in winter quarters on the 19th of October, a few days after the first killing frost. Several years ago I reasoned that, if nitrogenous food produced diarrhea in bees in winter, the lack of bee-bread in the hive would prevent it, and practice has sustained the theory. Now, I thought that, if exercise wears out the bees and makes them consume more stores, putting them in winter quarters would prevent the wearing-out process, and save honey. What will be the result? We shall see. Another thing taken into consideration, is the alternating cold nights and days, and warm nights and warm days; and as the right temperature and proper food is the key to successful wintering, it seems to me it must be a saving to put "our pets" away for a good rest as soon as their season's work is done. The outdoor temperature has varied from 24 to 68° since the bees were put in the cellar, but the thermometer in the cellar has not been below 48° nor above 50.

Auburndale, O., Nov. 3, 1887. A. B. MASON.

I am very glad to know, doctor, that you still use and like the Given press. Heretofore it has transpired that those who succeeded in making foundation on wires with the Given press used a smaller frame than the L. I want to have you tell us if you are talking about a full-sized L. frame when you give the Given press such praise.—On two accounts I am sorry you gave that remedy for bee-stings. The first is, that every man, woman, and child will want us to publish *their* bee-sting remedy just because we let you publish yours; and I hope you will forgive me for saying that the second reason is, that I do not believe the cloves affected the sting a particle, one way or the other. Now, do not be in a hurry to talk back, but please remember, as I have told you so often before, that bee-stings generally get well anyhow, and the majority of them about as soon as they do when you apply your remedy. I suppose the reason you recommend applying it immediately is because it might get well before you got your bottle uncorked, if you did not hurry up. Then, you know, there would not be any chance to say the *remedy* did it.—I hope the Japanese buckwheat will make you laugh still harder this year.—Now, perhaps our readers will wonder what in the world you mean by giving a report about your bees in winter quarters, that was written away back November 3. The reason why your article was delayed so long—well, we aren't ready to tell just now why it was held; but if the doctor will tell us how those few colonies put in the 19th of October are by this time, we shall know whether to take stock in his plan of putting them in so early or not.

HEAD-WEAR IN THE APIARY, FOR WOMEN.

SUGGESTIONS ON THE COMFORT AND CONVENIENCE OF HATS AND BONNETS.

MR. ROOT:—The ladies' straw bonnet I meant to recommend for a bee-hat is not shaped at all like any Shaker bonnet that I have ever seen, and I used to wear them when I was young. It is far superior, in my estimation, because it flares a little from the back of the head, keeping the top of the head cool. Those of us who are troubled by overheating will find it invaluable, as well as those of us who wear our hair coiled upon the back of the head, to give room for the hair, which makes it feel comfortable on the head; besides it does not break and wear our hair off like a hat.

I did not intend recommending its use for the wear of men, although I did mention Mr. Axtell liking to wear one so well, as he has the headache so much, and it keeps the head cooler than a hat. It does not bind around the head like a hat—a feeling that is very annoying to me when I am sweating. I always want to keep pushing my hat up, so it will not fall down over my forehead, and that is one reason I do not like a hat. The bonnet keeps the forehead and top of the head cool, and does not flop around from side to side, or down over the eyes either. The wire cloth naturally keeps pushing the hat up, even if we do pull it down around the head, unless the wire cloth is short; and if short it gives a feeling of smothering when it rises even with the mouth; and we women-folks (judging other women by myself and hired girls) much prefer wire cloth for a face-protector, as we get far less stings than when we wear brussels net, or any cloth face-protector. For gentlemen who have whiskers it is all right. Mr. A. likes brussels net, but we women get too many stings upon our noses, cheeks, and chins. I am afraid I should not like bee-keeping if I were obliged to wear brussels net, even on the back of my bee-hat, as the net clings to the neck so closely the bees sting through far more often than through calico. The calico is sewed upon the back and sides of a bee-hat or bonnet. It also keeps one from getting so badly tanned.

Another reason for liking the bonnet is, it does not rumple our hair so much as a hat, and this makes us feel very uncomfortable with our hair torn down over the eyes. Those who wear bangs would not be thus annoyed; but some of us middle-aged ladies can not think of making ourselves look so hideous as to cut off our front hair. When I am obliged to work with bees all day I find it a great comfort to roll the front of my hair under tightly, commencing where the hair is parted in front. It keeps the hair up much better than by tying it back by putting a ribbon around the head, or wearing a round comb.

The foregoing remarks are for those women and girls who have to stay outdoors with bees for days, weeks, and months, day after day, and who are seeking for comfort and health rather than to look well; yet the hat described, to my eye, makes one look better, because more comfortable than a floppy hat with one's hair in every direction. Another comfort is a small handkerchief, or a cloth not much larger than the hand, tacked to the bottom of the bee-hat. To lift up the hat enough to get one's hand under, often lets one or more bees under, especially when bees are so thick in the apiary it would look as if one could hardly help breathing them, as it often looks in our apiary.

MRS. L. C. AXTELL.

Roseville, Ills., Feb. 21, 1888.

My good friend Mrs. A., you have struck upon an extremely interesting and practical question. I presume that you and your helpers have got hold of the very best thing for the purpose, especially for women. You do not mention, however, our cheap cool hat which we sell expressly for holding veils away from the nose and face. We never think of letting our brussels-net veils come against the neck or the face, for we know by experience that it does not answer at all. Now, can you not give us a photograph of the bonnet you mention, rigged exactly as you would have it for working among the bees? No doubt it would prove a great help to many of the sisters, and may be some of the brethren, who, like your good husband, don't care very much how they look, so they can work with comfort. Tell us where you get the bonnets, and what they cost.

NO BEE-FEEDER NEEDED.

A NOVELTY IN THE BEE-FEEDING OF THE TAR-HEEL BEES WITH A FORCE-PUMP.

FRIENDS:—Having occasion to do considerable feeding again this spring, and desiring to do it speedily too, for several reasons, I puzzled my brain for some time to invent some means of at once putting the sugar syrup within reach of the bees, without the tedious and necessary anxiety of watching, together with the necessary labor of repeated filling of feeders. As a result I decided to try my Lewis combination hand force-pump, to fill the empty combs with the sugar syrup. I had often filled them by pouring the syrup on the combs from a distance above them, but that is exceedingly slow and uncertain work. Well, how did my pump work? Why, sirs, just the thing we have all needed these many years past. It is the right thing in the right place; it puts the syrup right into the empty combs, and they may be set back among the bees at once.

I have fed to-day over 200 lbs. of sugar, converted into syrup, in less than four hours' time.

How to do it, do you ask? Why, make your syrup of the right consistency; take a large tub, or vessel of some kind, just high enough to set your combs *in around;* put in several at a time; pour into the vessel enough syrup to fill them; set your pump into the syrup, slip the slide at the end of the nozzle, so it will split the stream; hold the nozzle at an angle of about 45° to the combs, and just work away, rather gently, not too hard; if you do, you force the syrup into the cells and out again. You can very soon learn just how much force to use, by a little practice.

You can fill your empty combs so quick it will do you good to feel their weight; put them right in among the bees; no robbing, no mess of continued feeding; no feeders to pay for, and no bees starving because it is so cold they can't get the feed out of the feeders. I have never used any thing in the apiary that has given me so much satisfaction, in so short space of time, except a good smoker when I tackled some Cyprian or Syrian stock of bees.

Try it, friends. It is the very thing you need, if you have any feeding to do.

ABBOTT L. SWINSON.

Goldsboro, N. C., March 15, 1888.

Friend S., I should not wonder if you have actually gone and made a big invention. Just think of it, friends! We have had fountain pumps and all sorts of pumps to spray the bees with and allay swarming, and for washing windows, wagons, and almost every thing else that I know of, except using one to force syrup into combs. Of course, it will work. Before I half read your description I saw the point. The only trouble is, somebody will go to fussing with this sort of arrangement when robbers are around, or he will spray the syrup all over himself, and may be all around the kitchen. The man who manages after that sort of fashion had better not undertake it at all. If you can feed 200 lbs. of sugar in four hours, and not have any feeders to purchase and to take out of the hive and put away after you are done, you have made a pretty good thing. When I read the first sentence of your letter I did not know but you were going to recommend spraying the syrup on the grass and let the bees lick it up, making them believe it was genuine honey from the blossoms; or you might spray the big apple-tree with syrup and make the bees think it was full of blossoms dripping with honey. In that case they would forget to quarrel.

A GOOD REPORT FROM SWEET CLOVER.

IT NOT ONLY KEEPS THE BEES BUSY, BUT IT FILLS THE SURPLUS COMBS OF HONEY.

MR. ROOT:—Your seed catalogue is received; and on looking over the list of seeds of honey-plants I was somewhat surprised as to the statement concerning sweet clover. I have raised it four years with good results. The first year I had about three-fourths of an acre, and ten stands of bees. In the latter part of June the sweet clover came into bloom, and soon the bees found it. In a week more it was a regular hum in the patch from nine o'clock till dark. It was the only patch for miles around, and there was scarcely any thing else yielding honey, at that time, so the neighbors' bees had time to help take care of the honey in sweet clover, and so they did.

My uncle lives 2½ miles in a bee-line from here, and had about 25 stands; and such a stir there was among them for this little patch! Why, we just had a strong bee-line from here to Uncle Abraham's. He came over one day, and said, "How are the bees doing?"

Said I, "Good."

"Why," said he, "this is the time of year that bees gather no honey here."

"Oh! well, here; taste this;" at the same time handing him a saucer of newly extracted honey. Well, when he had satisfied that "sweet tooth," which, by the way, took a good while, said he, "Now let's see the bees."

After showing him the well-filled combs and sections, "There," said he, "out of that weed patch," pointing toward the sweet clover, "is where your bees get the honey, for no such honey has been gathered around here before."

He has lived here fifteen years, and kept bees the greater part of the time. For four years I have had from ¾ to 4 acres of sweet clover, and each year bees have done well on it. Last year bees within 1½ miles of my 4 acres did well, while those outside of that area around have done poorly, many starving in midsummer, on account of the very dry weather we had. We had no white clover, and very little red; but in the height of sweet clover, bees were lively. I had 50 stands. I ran a few for extracting, and got what I called pure sweet-clover honey, from 22 to 29 lbs. per stand. I consider it of much value as a honey-plant for our Western country, as it comes here in bloom just when alsike and white clover close, thus lengthening the season from three weeks to five. The past winter my bees did well. I have lost none up to date.

Garden City, Mo., Mar. 24, 1888. G. J. Yoder.

Many thanks, friend Y. But such reports as yours are few and far between. As you state it, it really looks as if it would pay to raise sweet clover; that is, if no other use is made of it than for the sake of the honey it yields.

NOT STRICTLY EMPTY FRAMES.

FRIEND W. Z. H. REPLIES TO J. P. ISRAEL, SEE P. 253.

The graphic and humorous article of Bro. Israel, in last Gleanings, brought a hearty laugh from both myself and Mrs. Hutchinson. I must say, though, that I was surprised at the course taken by its author, and still more that he gives me the credit of advising such methods. In my little book, "The Production of Comb Honey," in the chapter headed "Hiving Swarms upon Empty Frames," page 28, the opening sentence reads thus: "By empty frames is not meant those that are *strictly* empty, but those having starters of foundation three or four cells wide."

Could any thing be plainer? Yet, if I understand him aright, Bro. Israel hived his swarms upon frames that were *literally* empty. If I hived swarms in such a manner, I should expect results similar to those reported.

I send this explanation to Gleanings, instead of giving it in the *Review*, as I wish that all who saw the article of Mr. I. may also see the explanation, and thus none will be misled.

Flint, Mich., Apr. 3, 1888. W. Z. Hutchinson.

Well, I declare, friend W. Z. H., I am ashamed of myself to think that I too omitted to mention that you always advised strips of foundation starters under the top-bars. I felt sure there was something wrong somewhere, but I did not at the time get at it exactly. I suppose, however, that friend Israel and every other old bee-keeper use some sort of a comb-guide. May be he will tell us what he does for a comb-guide under his top-bars.

QUESTION NO. 38 OF THE QUESTION-BOX RECONSIDERED.

BEES CONSUME LESS STORES IN LOCALITIES WHERE THEY CAN FLY ALMOST EVERY DAY.

"Do bees consume more honey in localities where they can fly almost every day, than where they are housed up three or four months by the cold?" To this most of the correspondents answered yes. I have kept bees in a cold climate and here in Texas, so I can tell something about the matter.

One of the mistakes is the idea that, in a Southern climate, the bees commence breeding earlier. Here they never commence breeding in spring before some pollen is gathered. In winter, as well as in our dry summer, the bees can not gather any honey or pollen, and then all breeding is stopped. The bees are at that time generally entirely quiet (some few leaving the hive occasionally to look out for something to be gathered), no matter if the mercury is at 110° or down to 20° F. Sometimes they fly out for a cleansing flight. So it is another mistake to believe that our bees are out all the time.

The dry summer time commences here about the end of July and lasts till the beginning of September. In this time the consumption of honey is very slight. I can't tell exactly how much, because I have had no hive on the scales as yet. Our winter commences in November, and lasts till February, nearly three months. In this time a little more honey is consumed than in the summer quietude, because some honey is needed for fuel, if the mercury goes down to 25°, or even 20°, for two or three days; but most of the time we have 70° and more. As soon as pollen is coming in, breeding is going on rapidly, and now a great amount of honey is consumed; but about 20 days later, all the honey needed for brood is generally gathered.

In the Northern climate we can observe that bees in a proper temperature, and fully quiet, will consume very little honey; but they commence breeding in confinement, and sometimes earlier than in the South. In Germany I found, in 1868, Jan. 25th, in a strong colony over 500 square inches of brood, part of it already sealed. This early breeding consumes the most honey, and it is very difficult to avoid it in a cold climate, but very easy in the South.

My experience is, that bees use much less honey in the Southern winter than in the North, if we take for winter the time from the first frost in the fall till some honey is gathered in the spring.

L. Stachelhausen.

Selma, Texas, March 7, 1888.

Friend S., I believe you are right in the matter; and we are very much obliged to you for the points you bring out. I am well aware there are often seasons, even here with us, in August and September, when brood-rearing ceases almost entirely, when the amount of stores consumed is quite limited; and I know, too, that a powerful colony will, in the spring time, when pollen is coming in heavily, and every frame is full of brood, consume enormous quantities of honey, amounting to several pounds in a single day.

WHAT TO DO, AND HOW TO BE HAPPY WHILE DOING IT.

Continued from Feb. 1.

CHAPTER XLVIII.

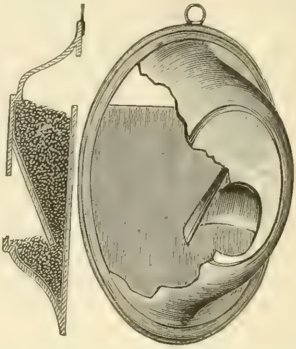
Let every thing be done decently and in order.—I. COR. 14:40.

Perhaps I have used this text a good many times; but even if I have, as I approach the close of my book I feel the need of it more than almost any thing else. In fact, it requires more hard study and brainwork to keep things decent and in order than in almost any one thing about our work. Of late, our boys have a fashion of sweeping out and brushing out the greenhouse every night, just before they finish their work; or, at least, they do it unless something extraordinary turns up. I do not know whether they have learned that it always makes me look pleasant and happy to see the paths nicely swept up, and all rubbish brushed carefully out of the way, or not; but it certainly does make all the difference in the world to me. In fact, there is something fascinating to me about neatly swept earth or walks where many feet travel. I can remember, years ago, when spring time came and the ground began to dry up, that we used to rake up the chips and sweep the chip-yard. The paths around the house were also swept with a broom. I do not know just why it is, but I love to see traces of a broom. It looks as if somebody lived there; and it also tells me that this "somebody" is one who loves order and decency—one who has high aspirations in his or her heart; and if I should say it seems to tell me of a heart that loves God, I do not know that it would be very far out of the way after all; for everybody assents to the proverb, that "cleanliness is next to godliness." We must have paths, not only around the house, but through the garden, to the barn and other out-buildings; and I do love to see these paths kept neat and tidy; and for this purpose of tidying up I would have convenient tools—a nice garden-rake, a couple of old stiff brooms, a sharp hoe, and a sickle; yes, and a market-basket to carry the rubbish to the stove, instead of dumping it out into the streets. Sweep up, slick up, make the ground smooth and neat, outside of the gate as well as inside. Make every thing about your premises, the side of the road adjoining your land, look neat and tidy and attractive. I have sometimes thought that people who have *little* homes, and a *wee bit* of land, ought to be happy, because it is not so much of a task for them to keep every thing neat. I wonder if real good people are not always neat.

At several places in my book I have spoken about poultry. Some way it seems to me as if poultry are more hopelessly depraved in regard to this matter of neatness than any thing else in animated nature. Who would think it possible that so much discord, disorder, and unsightliness could be produced in one short hour, as may be done by a single old hen and chickens? I have spent some money in having nice neat poultry-houses, with glass sash over them; but it has always seemed as though their first desire were to destroy and tear up what they can not mar and deface and make unsightly and disgusting by their everlasting scratching; and they manage to disfigure things further by their awfully depraved and heedless fashion of scattering droppings. Sometimes I pick up an old Brahma hen and give her a shake, with an admonition something like the following: "Why, you miserable good-for-nothing biddy, haven't you any sense about the fitness of things at all? and have you no *small grain* in your little head, of a love for neatness and order? Just see what work you have made with your new poultry-house, and these nice new feeding and watering arrangements which I have provided for you."

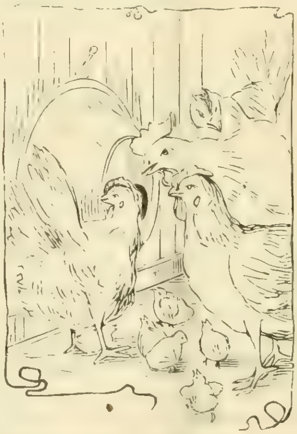
Biddie does not seem to be hurt at all by my sharp reproof; in fact, she sings a small song in an indifferent, good-natured sort of way, as if to say, "Why, every thing is all right, so far as I can see. I don't see any thing to be unhappy about, or to make a fuss about." A pig is certainly more discriminating in the way of neatness and propriety than a chicken.

Well, this matter of keeping things neat in the poultry-house has been much on my mind. One of the best things to make hens lay is boiled beans; and as we sell a great many beans on the market-wagon, we have more or less culled beans all the while, for we never think of selling beans until they are hand-picked and ready for the table. Well, these culled beans are boiled, and carried out hot to the poultry. We used to feed them in a tin pan; but some of the biddies would set their nasty feet right into the feed, in a very little time. Poultry books and journals give pictures of feeders that permit the hens to put in their heads, but not to stand in the feed with their feet. Most of these feeders, however, will soon be used for a roosting-place, until they get to be so unsightly I long to burn the whole thing up, that I may forget it ever existed. Some people throw the leavings of the table on the ground, and let the chickens help themselves. I do not suppose that the poultry care very much, but *I* care. In Chapter XIV. I showed you a picture of our poultry-house and the feeders inside the house. These do very well for different kinds of grain; but a few days ago I wanted to feed some cracked bones and oyster-shells, and I could not think of throwing them on the ground, amid the filth. One feeder was full of oats and corn, and the other contained wheat. In looking for something that would just suit me to feed the shells and bone meal in, I struck upon a feeder that pleased me so much that I want to tell you about it. If we don't look out, our poultry-house will be cluttered up. Utensils for water and feed should be out of the way as much as possible; and it is still more important that they be so constructed and placed that fowls may not stand upon top of them, and disfigure them with droppings. They should be made so they can be easily brushed off; in fact, the whole interior of the poultry-house and all its utensils should be so arranged that the aforesaid broom, or a little brush-broom, may be used all over the interior. I wanted for my purpose something made of metal, so it could be washed or wiped off with a cloth. At first I thought of a tin pan with a hole cut in the bottom, for the fowls to put their heads in, to be hung up against the wall. Finally my eye caught on a new retinned wash-basin, large size. These cost 15 cents apiece. I took one of them up to the tin-shop, and directed the tinner to put a cover over the top. This cover was made out of a circular piece of tin, and locked over the rim. But before putting it on he cut away one side so as to leave an opening for filling the feeder, just below the ring attached to the wash-basin to hang it up by. Then with a large punch he cut a hole in the lower side of the bottom, large enough for even the Brahma rooster to get his head in. You will notice, however, that if this feeder be filled with wheat or corn, and hung up against the wall, a great part of the grain would run right out on the ground. To prevent this, a piece of tin just about like a common tunnel cut in halves is soldered just over the opening for the fowls' heads. It is put on broad end down. This allows the grain or feed to keep just under the opening; but none of it can run out. The feeder works to perfection. Here is a cut of it.



OUR WASH-BASIN POULTRY-FEEDER.

The same arrangement works beautifully for boiled beans, scraps left from the table, or any thing else you wish to give them, and not have it get out in the dirt, causing them to get it filthy in order to get out every scrap of food. Now, the same utensil will make the prettiest and cheapest water-fountain you ever saw by telling the tinner to let the back cover the basin entirely, and then have it soldered on air and water tight. In the latter case, the half-tunnel must stand about a quarter of an inch below the lowest part of the opening where they put in their heads. To fill it with water, lay it down and pour the water in through the hole, or immerse it in a tub or trough of water, and hang it on a nail and then they can drink as long as a drop of water is left; but no chicken is smart enough to scratch dirt and rubbish into it. Below our artist has tried to show you how the fowls take to such an arrangement.

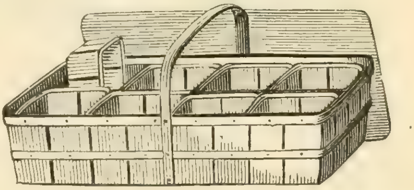


THE WASH-BASIN FEEDER IN ACTUAL USE.

Our tinner says these feeders can be sold for 35 cents. If some of our large stamped-ware establishments would make them, and have them dipped in melted tin, so as to fill the crevices and prevent rust, it would be a beautiful arrangement to put on the market.

In gardening and small-fruit raising, it is just as important that the work be done decently and in order. Just one illustration. It is so much the custom to set currant-bushes up by the fence somewhere that the word "currants" has become suggestive of some disorderly corner by the pigpen, probably filled with rubbish, heaps of ashes, brush, old boots and shoes, etc. Now, the currant is a beautiful fruit, and there has never been a time since we have been running our market-wagon when we could not dispose of currants at good prices—all that we could get hold of. I do not know that I ever saw a currant-plantation laid out and kept decently and in order; but I have one of my own where the cherry currants are set out like an apple-orchard. There are five rows, and about twenty-five bushes in a row. They are far enough apart so that one can readily walk all around each bush, no matter if they get to be as large as the currant-bushes used to be in grandfather's garden. They were put out only a year ago, so they have not made much growth yet. The rows are seven feet apart, and between each two rows we have a row of Jessie strawberries. This 6th day of April, almost every bush has new shoots an inch or more in length, and the sight of my little currant-orchard made me feel so happy this morning when I was out among them that I have been happy all day.

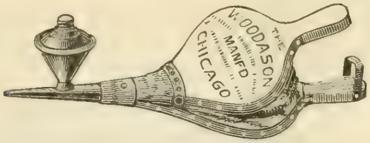
Now, after you get your currants, raspberries, strawberries, etc., set out, and bearing nice crops, unless you do your work decently and in order you will not be happy then. In setting the average boys and girls to picking strawberries and raspberries, I have had about as much annoyance and perplexity as in any other one thing. Every season more or less boxes of berries have been left out in the sun or rain until they were spoiled. Our young friends would get so much excited about making money fast when the berries were thick and large, that they would lose their berries, tip them over, or step on them, and some of them would come to me, saying they did not have pay for all they picked. Sometimes the pickers would quarrel. Any of these troubles indicate a want of the spirit of our text. One great trouble is to know what to do with the boxes of berries when they are picked. For selling them around town from the market-wagon, the arrangement shown below is the best of any thing I have seen.



A BASKET OF BOXES FOR STRAWBERRIES.

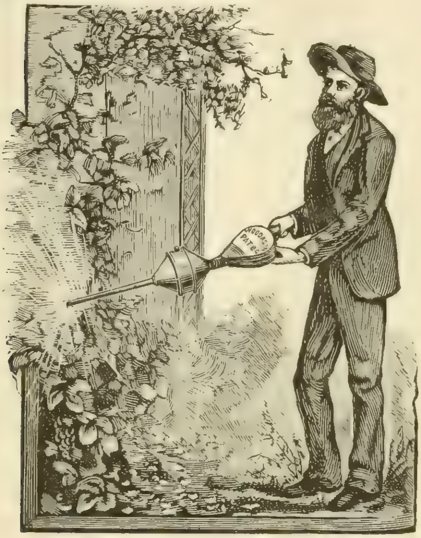
The above basket holds two tiers of quart boxes, and there are eight boxes in a tier. When the pickers go into the field, each one is to get as many baskets of empty boxes as he will probably need. As fast as they pick them, they are placed back in the baskets. When they are done, all incomplete baskets are filled out with the empty boxes remaining, so that, when the work is done, each basket is as full and complete as it was when they started out into the field. When they are delivered at the fruit-house, each one receives credit for what he has picked. If any boxes have been lost or left in the patch, there will be a vacancy in the basket; and this vacancy is supposed to be occasioned by losing a box of berries. The picker must then hunt it up or pay for it. A great many other systems have been given, I know; but this pleases us best of all. It insures the work being done decently and in order.

What is more unsightly in a garden than to see vegetables eaten up and disfigured by insect-enemies? I have sometimes thought I would give considerable to see a cabbage without a blemish or spot on a single leaf. Leaves eaten into shreds and strings, or even punctured with holes, always make me feel despondent and dismal; and every hole that is made by a worm or insect in a cabbage-leaf is more or less a damage to the cabbage. The inventive genius of mankind is just now making greater strides in successfully fighting insect-foes than ever before. Convenient bellows for dusting the poison not only on cabbage, but trees, are now in common use; and if these implements are used just as soon as an insect makes his appearance, and the practice is followed up, we can have beautiful fruits and vegetables. Toward the close of our last chapter I made mention of the Woodason bellows, for blowing sand on the paint used to fasten the glass in sash. The same implement is used for destroying insects by means of slug-shot, pyrethrum, or other dry powders.



INSECT-POWDER BELLOWS.

We used with much satisfaction a still larger bellows last season. One could go through a cabbage-patch, standing upright with this instrument, and it would send such a cloud of dust about him that scarcely a worm was left. Below is a cut of the machine showing the way it is used.



WOODASON'S LARGE-SIZED INSECT-POWDER BELLOWS.

As I have before remarked, we have not found any application of powder as successful with potatoes as a solution of Paris green in water. I believe Prof. Cook recommends London purple as being cheaper and better, using only one pound of powder to 100 gallons of water. This not only kills potato-beetles, but the codlin moth on apple-trees, so that we can grow apples not only free from worms in the core, but fair, round, and smooth—no knots or gnarly places about them. The apparatus for spraying the above liquid on potatoes, apple-trees, or any other plant troubled by insect-foes, is manufactured by A. H. Nixon, Dayton, O. A barrel of the liquid is drawn out on a sort of sled or cart, to the field, and a powerful force pump is attached thereto, which throws a perfect cloud of spray wherever we want it. A potato-field or apple-orchard can be gone over very quickly in this way. Some may urge that the crops would never pay for so much expense and bother. My friend, what does it cost you to lose a crop after you have purchased your manure, prepared your ground, and cultivated and cared for it until it is nearly ready to harvest?

Now, perhaps you look at this matter of fighting insect-foes as a very great trouble and bother—as if it were, in fact, paying a big price to have your work decent and in order. If so, it is because you have not entered into the spirit of the work. You are not in love with your chosen occupation. You may smile when I tell you that I have, for two or three seasons back, felt almost pleased to see weeds and insect foes start up. I watch anxiously for the first potato-bug to make his appearance, for I want the fun of coming out ahead in the battle. I like to give them to understand that *I* am boss, and that they can not by any possible chance steal my crops from me, which I have worked hard for. When you take them in this way, the labor is comparatively light. Kill the first bug or worm that makes his appearance, either by hand or by insect-poisons intelligently applied, and you may easily be the victor. I like the excitement of the contest. I do not like to fight my fellow-men; but I do like to find and fight weeds and bugs; and I rejoice in letting them know that I not only remember but can successfully carry out the purpose for which God placed me here when he said that man should have dominion over these things, and subdue them. If you can not subdue every weed and every creeping thing that spoils your crops, you are not up with the times in fulfilling the purpose for which God created you.

CHAPTER XLIX.

He that tilleth his land shall be satisfied with bread.—PROV. 12: 11.

Is it not a little strange how differently our tastes run? Not only does the taste of one man run to gardening and agriculture, but if you look about among your friends and neighbors you will find this matter of gardening still further subdivided. One likes berries, another vegetables, another grains. Then the matter of vegetables is still further subdivided. One man makes cabbages a specialty; another, turnips; a third, melons; and each one finds much joy and happiness in his special line. By confining his attention principally to melons and nothing else, he finds a thousand new and interesting things about the habits of this vegetable, that nobody ever knew before. As an illustration of this, I am going to give you a paper below, from a young friend who used to be one of the boys in our factory, but who has, by a few years of outdoor work, become expert in raising melons. Let us listen to him:

HOW TO RAISE MELONS — BY ARZA C. PEARSON, LITCHFIELD, O

The melon is a peculiar plant, and might properly be called a tropical fruit; but it can be raised as far north as the forty-fifth parallel of latitude, to a considerable degree of success. The melon delights in a warm, light, sandy soil; but it can be raised upon any soil, with proper care and cultivation. In cultivating the melon, three things are necessary to its proper growth and cultivation; viz., good seed, good soil, and good cultivation. We propose to discuss them in the order given.

Good seed is the most essential point in the growth of any plant—more especially the melon. Never plant poor seed, under any condition. You can buy seed of any of the reliable seedsmen, and always buy the best. We find by experience that it does not pay to save seed. We buy our seed every spring of a reliable firm. You can determine whether your seed is good by examining the germ end of it. You can buy good seed at from 75 cts. to $1.25 per lb.

After the seed, comes the preparation of the soil. As stated, the melon delights in a sandy soil; but with good cultivation it can be grown upon almost any soil with proper fertilizing. Select a piece of ground facing the south or east, if possible, and plow under a good coat of manure in the fall or early winter, so as to freeze out all worms and grubs, as the cut-worm loves a stalk of melon, in my judgment, better than a stalk of corn. The freezing of the ground makes the soil light and mellow. As soon as the ground can be worked in the spring, a good dressing of well-rotted barnyard manure should be worked into the soil by frequent harrowings. You can not get the ground too rich or too mellow. The ground must be well drained, as the melon likes frequent showers, but will drown out very easily. After the soil is in proper condition to be planted, mark out your ground 8 feet each way, and make your hills deep and fine by working with a spade or shovel; and a handful of some well-known fertilizer may be worked into the hill with benefit. We have had the best success with level culture, as the raised hills are apt to dry out, and the fine becomes stunted in its growth. You will read in your seed-books, that it is best to plant melons after all danger of frost is over. We recommend planting as soon as you can get your ground in condition. Sow from 12 to 15 seeds in a hill, and cover half an inch with fine mellow dirt, and press the soil down with a board or your foot. You can thin out the plants as fast as you wish; and by taking the risk you are very likely to get a stand of 3 or 4 plants, which is enough.

Get your melons started as soon as possible, as an early plant is very apt to make a big growth, and the fruit will come in the warm weather, when most desired. The melon requires from 75 to 100 days to mature; and by planting by May 15th, ripe melons may be picked by Aug. 10th, or before. A great many fail in raising melons by too close planting. It should be planted from 6 feet each way to 8 feet, according to the variety. The Iron Clad, Cuban Queen, and other varieties of prolific growth, should be planted 8 x 8, while the Black Spanish, Peerless, and other small varieties, may be planted 6 x 6. Never allow more than four vines to a hill.

After the vines are from two to four inches high, commence to cultivate and keep the ground loose and mellow by frequent stirring of the soil. Keep the ground loose between the vines, and give a thorough working of the soil. Keep the ground free from weeds. After the vines begin to run, be careful not to get too deep, as the roots run close to the top of the ground. The melon is a surface feeder; that is, the roots are close to the top of ground. You can work more good into a hill by cultivation than you can put in by any other means.

From a week to ten days may be gained by sprouting the seeds, and transplanting them; but experience and care are needed to secure good results. We transplanted about 300 plants last season, with very good results. Most seed-books recommend a shovel of well-rotted manure to each hill. You will be apt to get the manure too deep, as the plants will not get the benefit until the fruit is half grown.

If you desire large melons and no small ones, pinch off the end of the vine after the melon becomes as large as an orange, and you will be surprised at the change, as the fruit gets all the benefit, and will double its size in a week or ten days.

As to the best varieties for the family garden, we recommend the Black Spanish and Peerless for early, and Iron Clad and Kolb's Gem for late. The Iron Clad is a good keeper, and may be kept for your Christmas or New-Year's dinner. As to the cultivation of the melon as a money crop, we believe that, under good cultivation, it will pay big results. Let us show a few figures. You can plant on an acre, 8 x 8 feet, 680 hills; allowing 4 vines to a hill and one melon to a vine, we have 2720 melons, which, at the low price of 10 cts. each, we have the neat little sum of $272.

The muskmelon can be cultivated the same as the watermelon, only it can be planted closer, 6 x 6 feet each way. Plant from 12 to 20 seeds to a hill. When the plants are 3 inches high, thin out to four of the best plants. You can hurry its growth by frequent applications of liquid manure. Make the hills the size of a peck measure, and work into it a handful of some commercial fertilizer. Hen manure makes an excellent fertilizer for melons, but it must be worked into the soil. Keep the ground loose, and free from all weeds; trim the vines for large fruit, as with watermelons. For the family garden we would recommend the Perfection, which is a medium-sized melon, growing in shape almost round; flesh, a bright golden yellow, and very sweet and delicious; and when eaten with cream and sugar it equals the peach.

The melon-vine is beset by a great many pests, the striped bug being the worst, often destroying the plant in a few hours. We find that an equal mixture of unleached ashes and air-slacked lime, sifted on the vines early in the morning, when the dew is on, is a good remedy.

The fruit should be picked in the morning when it is cool, and kept in a cool place until wanted for use. You can not have nice melons without some labor. Poor seed, poor soil, and no care, produce poor fruit. A great many complain about raising melons. The trouble is, they expect to plant a few hills and gather large returns, with no care. You will be disappointed every time. We would recommend the Colorado preserving citron for preserves, but the rind of the Iron Clad is almost if not quite as good as the citron. To 10 lbs. of the fruit use 5 lbs. of granulated sugar and five lemons. Boil the fruit until soft, then add sugar and lemon, and to the above add 3 lbs. of raisins, and you have a preserve that is excellent.

In conclusion, we would say to all, plant a few hills of melons and see if you can not surprise yourself and neighbors; for what is better in a warm, sultry day, as you come from the field all dust and thirsty, than a fine luscious watermelon? It cools the blood, allays the thirst, and makes one feel thankful and good-natured.

I would add to the above, that we can make a sure thing of warding off insect-enemies by the use of the squash-boxes described and illustrated in Chapter XXIV; see, also, the close of Chapter XXXVII. I would also use the plant-boxes for getting at least a few of the hills extra early.

I now wish to give you another one from a friend away off in Pennsylvania, with whom I have had considerable deal in the last few years:

Brother Root:—When you drew friend White's picture in Chapter XLI., and spoke about his always having a hobby, I said, "That's me exactly." I thought that you and I were alone in extreme hobbyism. I went through the strawberry-fever a dozen years ago. I used to pick thirty bushels a day; but I must tell you about my last hobby. It is turnips. I have a secret to make public. Any one can raise turnips if he knows the secret. It is easy—very easy. Turnip-seed is sown in July and August, when the earth is nearly always dry one or two inches deep, and the seed can't come up. The secret then is, *sow the seed from two to three inches deep*, so it is in the *moist earth*, and you will succeed every time. I have succeeded for years. The seed will come up if in *very deep*. To plow it in with the shovel-plow is the cheapest way. For ten years I have raised turnips, and always improved the seed all I could. I mark the seed-turnips when the crop is growing, then I select again when I pull, saving me the cream of the best. If you care to have an article on turnips and how to raise and harvest them so women and children can do the labor, I will furnish you one, and you can trim it to suit yourself. You see, brother Root, I am nearly twoscore, and my father, Tobias Martin, was a horticulturist before me.
J. M. MARTIN, M. D.

Mercerville, Pa., Nov. 2, 1887.

Of course, I asked friend Martin to tell me all about turnip-raising. Like friend M., my father before me was passionately fond of turnips and turnip-raising. Whenever we boys went off for a holiday, father would get his cultivator and hunt up the best piece of ground on the farm, and have his holiday by fixing the land just according to *his* notion to raise turnips. He never sold very many, however, but he used to have plenty for family use, some for the stock, and some to give to the neighbors. No wonder I was ready to fall in with friend Martin's hobby.

A slip from a local paper accompanying the above informs us that friend Martin had *already* received a crop of potatoes from his four acres, which he mentions as giving him a profit of 17 per cent, before he prepared the ground for turnips.

THE SECRET OF GETTING NICE TURNIPS, WHETHER THE SEASON BE WET OR DRY—BY DR. J. M. MARTIN, MERCERSBURG, PA.

I will gladly give you all I know concerning the culture of the Russian turnip; but since you say that turnips have been one of your hobbies I feel that I may come short of giving you as much information as I expected. But, first, I will speak of the varieties. I have the Purple-Top strap; second, the White strap-leaved, and the Pomeranian; but the former is by all odds my choice, and the latter is better adapted for stock, owing to its immense size when full grown. The White Strap leaved is very pretty and good, but it does not seem to be a distinct variety with me, as it often produces purple or mongrel specimens. This may come, however, by the very dangerous practice of having several varieties seeding on the same place.

Second, as to the time of sowing the seed, the two first weeks in August is early enough, so says my experience: if sown earlier, the turnips are apt to get rough and scabby.

Third, the kind of soil. Sandy loom is preferable, but I have succeeded quite as well in black loam. I think more depends on the location than on the quality of the land. Most people choose a hollow to sow turnip-seed. I prefer a hill, gravily and light, no matter about the stones and pebbles. The hollow will often get weedy, when the hill or hillside is comparatively free from weeds; and the quality, too, is better at high altitudes as well as the color; but if the seed is sown as hereafter described, I think the locality and quality of the land makes less difference than the after care and cultivation.

My choice of a turnip-patch is the ground where onions, peas, or potatoes have been grown. Have the first removed by the 1st of August, and the ground perfectly free and clean of weeds; then sow the seed at the rate of ½ lb. to the acre, broadcast, and without mixing with land or other material. Sow only about 3 to 4 ft. wide, then take a cultivator and cultivate the newly seeded ground so the seed gets three or at least two inches down in the moist ground. It is the great drought, usually so prevalent everywhere about August, that destroys the tender germs of the turnip-seed; and it is to this that I attribute the most of the failures. You see, I am a nurseryman by trade, and I find this same thing is true of apple-seeds. If they are planted shallow they do not succeed so well as if sown very deep. When the ground is well cultivated it should be rolled or dragged to make it level, as a dashing rain will ruin the crop if small.

When the plants are up, and the leaves are as large as a silver dollar, you will see some of them are dark green and strong, while those seeds that are not deep enough in the ground will be what I call the weaklings. It is these weaklings that I remove by pulling them up or hoeing them out till the crop stands 12 to 18 inches, or even 2 ft., from plant to plant. This thinning is not done all at one time; but by going over the ground from 3 to 6 times you will be surprised to see what a small job it is to thin an acre in this way. As the seed is sown thin, the chances are that there will not be so many to pull after all, only in spots, perhaps, where they stand too thick, and where two are too close together.

Now as to cultivation. The turnip likes cultivation — the more the better; and I generally hand-hoe the crop two or three times. But this season my soil was rich and in good order, and the weeds did not appear to bother us at all. My crop of four acres will yield me nearly 1200 bushels, and I am selling them here at 40 cents a bushel, retail.

I sent one car load to New York. I do not know what they will net me; but Voigt & Co., of Pittsburgh, wrote me that they were worth fifty cents a bushel there. The freight is 9½ cts. a bushel from here to Pittsburgh.

Let me say just here, that my crop is short at least 200 bushels, owing to an acre that was sown with seed that I bought. It came up pretty well, but there are other things that make seed more than worthless. This seed I bought of a good Christian gentleman who would not sell bad seed if he knew it; but he had *bought* the seed, and sowed some of it himself.

Now a word in regard to the saving of seed. I have been improving my seed for ten years, and many of my friends depend on me for their turnip-seed. I do it in this way: When the first turnips are about two inches in diameter I put a little stick near those that show a decided superiority over their neighbors. What I mean by a superiority is those that are first to get large and show they mean to excel, and those that have a small top and a high color, avoiding by all means what I call a "great rank foliage," with a small bulb and of poor color. After these marked and selected specimens are ready, and, in fact, while they are growing, I discard all that are rough on the top, and of a white or pale appearance. I discard all, too, that are too deep through from top to root, preferring a flat specimen; and I believe the seed should be grown the same year it is sown.

How I wished Bro. Root could be with me while harvesting my crop this year, when a dozen hands were in the field topping the great big fellows, such as I will send you a barrel of.

Remember the secret: First, good seed; second, very deep sowing; third, thinning 18 inches apart; fourth, good cultivation.

I use Terry's potato-boxes to harvest the crop, and do it with women and children.

DR. J. M. MARTIN.

Mercersburg, Pa., Oct. 31, 1887.

Friend M., I would modify your directions by having the turnips drilled in with one of the Planet hand-drills; but in fitting the ground I would, just before sowing the seed, go over it with a common phosphate-sowing wheat-drill. I would fill the fertilizer-box with a mixture of phosphate and bone dust, or, better still, guano and bone dust. Then go over the ground as for sowing wheat. Be sure, however, that your drill is entirely emptied of seeds of all kinds, especially grass-seed; for if you are not careful you may have a crop of grass and wheat such as you never saw before, among your turnips. Now, after you have done with your wheat-drill, sow your turnip-seed thinly in every other drill-mark; or, if you prefer, every third drill-mark. Then go on with the directions you have given, using only the hand-hoe between the rows. If, however, you sow the turnips 18 or 20 inches apart, a trained horse will take a cultivator through them. Don't be afraid of spoiling some. I am sure that I lost a great deal of money last fall by leaving too many plants in the patch. We got a dollar a bushel for ours, however, and, by the way, the sample barrel you sent us sold readily for a dollar a bushel on the streets of Medina. You speak about saving only the high-colored specimens for seed. Now, this is a big point. Have them washed up nice and clean, and the color a one will sell them.

But in selling turnips, radishes, carrots, and all other root crops that are handsome in appearance, you must keep them wet or damp to have the colors attractive. To do this, give them a good wetting before you start out in the morning, and then keep all these things covered with wet burlap. If your burlap gets dry during very hot weather, wet it during the forenoon. It not only keeps the roots looking attractive, but it counteracts any tendency toward wilting and getting soft; and every good housekeeper will tell you she does not want vegetables that have been in the sun until they have become wilted. Attention to little matters like this makes all the difference between profit and loss.

Selecting seed from those that have a large nice-shaped top is another great point. Friend Martin sends us, with the above article, the tops, or crowns, of two turnips sliced off. One had a great thick heavy growth of tops, while the other had only a very small and inconspicuous top. In saving onion seed, our best seedsmen are very careful to discard all having thick necks; and the same process should be followed in saving seed of turnips, radishes, and perhaps all other root crops. By selection, make the plant throw its growth and vigor into the bulb, and not into the top. Here is another great opening, and, I would add, a great field for those who grow seeds.

Now, here is another from a friend whose hobby is in raising lettuce for market every day in the year:

$10.80 FROM A PIECE OF GROUND 12 FEET SQUARE.

Friend Root:—I have always thought, since I commenced growing lettuce for market, that it could be sold every day in the year, providing it could always be crisp and tender. But lettuce grown in the open field in hot dry weather is apt to be tough and of strong flavor. Last season I overcame this difficulty in the following manner: About the first of July I sowed some seed in shallow boxes. In three weeks I pricked out the plants into other boxes, 1½ inches apart, and kept well watered for two weeks. By this time they were nice plants, well rooted. I had a cold frame, 12 feet square and 2 feet high. This frame I had used in the spring to harden off early tomato-plants. Into this frame I put four or five inches of well-rotted cow manure, with a good sprinkling of ashes. I took a spade and turned it under, but not very deep. I then made it fine with an iron rake, gave it a good watering, for it was very dry, and let it stand a few hours. Then it was ready for the plants. Taking a board to put my feet on, I set the plants six inches apart both ways, commencing six inches from the inside of the frame. This lettuce received no further care, with the exception of being watered a few times until it got well started. What weeds came up were soon smothered. In twelve weeks from the time of sowing seed it was fit for market. I am positive it would have been two weeks earlier but for the severe drought. From this frame I cut 135 lbs., and sold it at the grocery stores in Elyria at 8 cts. per lb. This is how I raised $10.80 worth of the famous Grand Rapids lettuce on a piece of ground twelve feet square.

For my early spring crop I am using cold frames six feet wide and of any desired length, protected with common cotton cloth tacked on to light frames. These frames I make out of inch lumber. A board 12 feet long and 12 inches wide makes four frames three feet by six. Take the board and cut it in two in the middle and rip each piece into six strips. Three of these pieces make a frame, two for the sides, and one cut in two for the ends; halve the corners together; stretch two strong wires in place of the sash-bars, and you have a frame that will be strong and light. Use galvanized wire so as not to rust the cloth. My plants were started in the greenhouse, pricked into little boxes, and grown to the proper size, and then set into the cold-frame, box and all, to harden off. Those who have no greenhouse, and do not want to take the pains of making early hot-beds, can start the plants in the fall, and winter them over in cold frames.

For my second early crop I set plants with my early cabbages. This crop requires no extra ground, as the cabbage is set just the same as though there were no lettuce on the ground. The lettuce comes off before the cabbage interferes. (I am not half through on the lettuce question, but will stop for this time.) O. J. TERRELL.

North Ridgeville, O.

Why, friend T., you are right exactly in line with where my work has been for two or three years past. You have gone away ahead of me, however. I am glad to hear you speak of the cloth frames for shade. I have spent quite a little time and some money in experimenting with these frames; and I have made some very nice light ones to handle; but, alas! the wind sails them about to such an extent that I shall be glad to adopt such as you describe. Only night before last the wind blew a lot of them against our greenhouse, resulting in the loss of a dollar or two for broken glass. I had not thought of the idea of wires for the cross-bars, before; but I think I would have the cloth sewed around the wires at intervals; for we find the flopping of the cloth by the wind works the cold air in so as to do quite a little damage. We are exceedingly glad to get so good a report from the Grand Rapids lettuce.

HEADS OF GRAIN

FROM DIFFERENT FIELDS.

WHAT DO THE BEES DO WITH THE SURPLUS OF EGGS LAID IN EARLY SPRING?

EDITOR GLEANINGS:—The 25th of January, in examining my bees to see if they had plenty of honey, I found a little brood in all; but there was something about two of them that puzzled me. In one there was a small patch of comb, on either side of which was brood of all ages. In many of the cells I counted three, four, and in one cell even six eggs. In a few days those same cells contained each a nice young larva. Now, what became of the surplus eggs? Do the bees remove them? If so, before or after hatching? Was it because there was but little empty comb in the brood-nest, and the queen was just *running over* with eggs, that caused her to deposit so many in a cell?

SMALL DRONES, AND ARE THEY OF ANY SERVICE?

The other puzzle was this: I found in another hive a small patch of brood, in all stages, many cells containing two or three eggs; but a good portion of that which was sealed was drawn up above the other like drone larvæ, notwithstanding this comb was originally a sheet of worker foundation. I thought, "Fertile worker," according to my A B C book; but in due time the other larvæ were sealed over, worker like; and the following week, while standing in front of this same hive I heard something like the sound of a drone on the wing; and by watching the entrance closely (it required close watching, though) I detected among the bees a peculiar-looking fellow which I picked up and carefully examined. It looked like a "sure enough" drone, all except its size. The queen has been laying all right since, though not so prolific as could be desired. Now, what could have induced the production of drones thus early in the season, while the colony was very weak? Would those small drones have been of service for fertilization? I had some drones last year that were raised on worker foundation, but the cells were enlarged in some way by the bees to the proper size for the accommodation of those "gentlemen of leisure."

Sparta, Miss., Mar. 5, 1888. L. HALL.

The extra eggs found in the cell in your case, were probably because the queen had not bees enough to prepare as many cells as she was capable of using each day. This state of affairs often occurs where colonies are weak, especially in the spring time. I presume the nurse-bees remove the extra larvæ, for I have always found only one when they began to get large enough to occupy the cell properly. The small drones were accidental, and it is a common thing to find a drone or two that came out of worker-cells in almost any good colony of bees. Just before queens fail, however, it is quite common for them to lay a good many drone eggs in worker-cells. As to whether these small drones are capable of fertilizing a queen, is a question that has been argued quite a little. I believe we have, however, several pretty conclusive testimonies to the effect that they do, at least sometimes, fertilize queens.

A BURNING-GLASS FOR COLLECTING THE RAYS OF THE SUN FOR THE SOLAR WAX-EXTRACTOR.

Would it not be a good idea to use a burning-glass in connection with the solar wax-extractor, the glass to be larger than the average glasses? Of course, we must not set it so as to burn the whole concern, only just enough to make it a little warmer, to enable us here to make the sun do the trying-out of the wax for us any time through summer, when it shines. We would, of course, have to turn the machine a little every two or three hours or so, to face the sun nearly, till some fellow invents a "fixin" to make it work automatically, like your windmill. About two years ago I took a large bottomless white-glass jar, put a wire cloth under it, and filled it with old comb, etc., and hung it on the south side of a house, with a sheet of tin between for a reflector, as was described by one of your correspondents on page 127 for Feb. 15, 1886. It has been hanging there now for two years. Sometimes it reaches 90 to 100° Fahr. in the shade; but that won't melt wax. This makes me a little careful about a solar wax-extractor. What is the trouble with mine? C. REICHERT.

Thiensville, Wis., Mar. 6, 1888.

Friend R., I am afraid your burning-glass for a solar wax-extractor, large enough for the purpose, would be rather expensive. I have tried some of the cheaper ones, such as are sold for 15 and 25 cents. They will melt the wax on a spot as large as a cent, but you can readily see that, at this rate, it would take a good while to melt any considerable quantity of wax. As long as we can make the solar wax-extractor raise the temperature to 213 degrees Fahrenheit (wax melts at 145) with common tin as a reflector, and simply one sheet of glass, I hardly see the need of a burning-glass.—The trouble with your bottle hung up on the side of the house is, that it was not protected from the outside temperature sufficiently. The cool air would have access to the under side of the bottle, and I should readily suppose it could not heat up to more than 90 to 100 degrees Fahr. You remember Mr. H. L. Jeffries, the correspondent to whom you refer, had his jars inclosed in a triangular apartment, one side open to receive the rays of the sun.

In addition to what Ernest has written above, I will say that the glass jar is not of the right shape to utilize to good advantage the sun's rays. You want a flat glass that faces the sun; and the nearer the sun shines perpendicular to the surface of the glass, the more heat will be retained.

A NET PROFIT OF $84.00 FROM 2 COLONIES.

Last year I increased from 2 to 12 colonies, and took 84 lbs. of box honey, worth here 20 cts. per lb.; $16.80; 4 colonies I sold at $6.25, or 25.00, and 3 full-crammed colonies at $10, or $30.00; and 3 others engaged, $30.00; all paid for, $101.80. I fed, to winter them, 250 lbs. sugar at 6¾ cts., $16.87. Net profit, $84.93. This leaves me the 2 hives still. All this I told you, and just how I did it. Eight or ten weeks ago I called your attention to it in a pleasant way, but have received no response. I can not account for it, why you did not print it, unless you thought that too many might adopt my plan and flood the country with bees and spoil the trade. I propose, if I live, to increase one colony to 30 next year, and make $100 on the hive, if not more; and I will do it, see if I don't. **Henry Large.**

Whigville, Ohio, March 9, 1888.

Friend L., we certainly never received the report you mention. We are particularly anxious to know just how you did it. If you will repeat it we will repay you for your trouble. You should have known us better, if you have been taking GLEANINGS very long, to think for an instant that we withheld any scrap of information for fear it might, as you say, "flood the country with bees." "A land flowing with milk and honey" is the end and aim of GLEANINGS; and I suppose that the Bible word "flowing" would naturally mean that honey should be quite plentiful and cheap.

A SUGGESTION ON THE T SUPER.

I much prefer to have the T super the same length as the hive on which it rests. This makes it 18⅜ inches inside; and as the sections and T tins occupy only about 17⅜, we have about an inch of space that must be filled up. Now, to fill this space and also to facilitate the putting in and removing of sections when filled, I use a movable board 4¼ inches wide and as long as the super is wide inside, with a strip of tin tacked to its bottom edge. Said board rests on metal supports, the same as do the T tins, and supports the ends of the last row of sections. After the sections are all in place I slip narrow strips of wood about ⅛ inch thick between the tops of each two rows of sections, which holds them square and true while being clamped together, which is done by slipping a couple of wedges between the movable end-board and end of super. With this arrangement the last section will go in as easily as the first; and to remove sections when filled we have only to loosen the wedges and remove the end-board; and, if properly constructed, the sections can be removed quicker and easier than from any case extant. **J. E. Hand.**

Owasa, Iowa, Feb. 24, 1888.

Your plan will work very well, friend H.; but it seems to us that it rather complicates things when so little, comparatively, is gained. It is true, the last end row of sections can be gotten in a little easier; but we hardly think you can remove the sections any quicker or any easier than can be done with an ordinary T super on the plan recommended by Dr. Miller. You will remember that the doctor has a follower, the dimensions of which are such that it will slide through the shell of the super. After having run a knife around the inside edge of the super to sever what propolis connections there may be, the whole contents of the super can be removed at one operation by the pressure of the follower from below. We have tried it, and know what can be done. The object of pressing the sections together is to close up the interstices, giving the bees less of an opportunity to insert propolis; but to produce end pressure in the T super does not help the matter at all. You can not get the two sides of the sections closer together than the upright of the T tin will admit. If you are going to have a wedge and board, it is much better to produce pressure on the sides of the sections. This can be done with any T super, without changing its original dimensions, and you can get the last row in just as easily as you can any other row of sections; therefore, friend H., we can hardly see what advantage you will gain by making the deviation, by increasing the length of the T super for the purpose of inserting the board and wedges.

OUR QUESTION-BOX,

With Replies from our best Authorities on Bees.

All queries sent in for this department should be briefly stated, and free from any possible ambiguity. The question or questions should be written upon a separate slip of paper, and marked, "For Our Question-Box."

QUESTION NO. 46.—*1. To prevent the bulging of combs in the section, do you think it pays to fasten the foundation with two attachments? 2. If so, would you fasten to the top and bottom, or to the top and one side?*

No. **O. O. Poppleton.**

No. **Geo. Grimm.**

1. Yes. 2. Top and bottom. **Dr. A. B. Mason.**

We fasten to the top only; foundation ⅜ of an inch up from the bottom. **E. France.**

We would fasten the top and both sides if practicable, but the top alone will do. **Dadant & Son.**

I fasten to the top only, but allow a little space on each side, and about ⅛ inch at the bottom. **Paul L. Viallon.**

Fasten only at the top. The bees will fasten at the sides, the first work they do upon them. **H. R. Boardman.**

No. I think it should be fastened only at top, nearly touching at each side, and one-half inch short at bottom. **L. C. Root.**

I should like some expeditious way of fastening to the top and both sides. It should never be fastened to the bottom. **P. H. Elwood.**

Fastening at two sides would not prevent bulging, which results from other causes. Never fasten foundation at the sides. **W. Z. Hutchinson.**

Foundation should be fastened to top-bars only, in frames as well as sections. To swing clear is the best preventive against bulging. **Chas. F. Muth.**

1. I think it would if you are obliged to employ help in the apiary to handle cases, etc. 2. I do not think that there would be much choice. **Mrs. L. Harrison.**

1. I think it might, if there were any way by which it could be satisfactorily done with sufficient rapidity? 2. Top and bottom, I think. **C. C. Miller.**

My friend Betsinger fastens the foundation at both sides, and thinks there is no way like it. So far I have fastened only at the top. B. does not fasten at the top at all. **G. M. Doolittle.**

I prefer to fasten only at the top, though I have succeeded well by fastening both at top and bottom. Mr. John Rey, of our State, has excellent success fastening both above and below. **A. J. Cook.**

1. No; I never do it, and have no trouble. 2. I fasten one at the top, leaving about one-eighth space at the sides and one-fourth to three-eighths space at the bottom. **JAMES HEDDON.**

1. Bees will sometimes work on one side of a piece of foundation and curl it badly, fastening the end to the separator if there is one, and bulging it into the next space if there is not. If I am right, this sort of business is seldom done except by a very weak colony, or when honey comes in very slowly. From the conditions of the case, not many sections will be damaged in this particular way; and I would not advise much extra work to prevent it. If a remedy is really needed, the one given by Oliver Foster—GLEANINGS, 1888, page 43, seems to be the correct one. 2. Fastening top and one side leaves one corner free to be curled around. Try a few fastened at top and bottom, and make sure that you can make that style work satisfactorily; then, if you think it pays, put them all in that way next year. **E. E. HASTY.**

I am a little surprised, friends, to see so many insist that fastening at the top is sufficient. I suppose that, in answering this question, reversing sections has been ruled out. If they are to be reversed, I would most assuredly want to fasten both top and bottom, or two sides. See Doolittle's article, page 249, last issue.

QUESTION NO. 47.—*I have a good market, both for comb and extracted honey. The latter brings about two-thirds the price of the former. Which would you advise me to do—produce comb or extracted honey, or both? Is it an advantage to make a specialty of either one? How is it with you? Do you produce one or the other, or both?*

1. Both. 2. No. 3. Both, but mostly extracted. **DR. A. B. MASON.**

Produce extracted. We think it pays better. **DADANT & SON.**

Both, if your market demands it. I produce principally comb honey—some seasons, entirely so. **MRS. L. HARRISON.**

It is of advantage to produce that which you can sell best. If you can sell both readily, produce both. **CHAS. F. MUTH.**

In your case it would be about "which and t'other." It is an advantage in our locality, usually, to make a specialty of one kind. **W. Z. HUTCHINSON.**

At those prices I would produce extracted honey exclusively. On the whole there is not usually much advantage in making a specialty of either. We produce both. **P. H. ELWOOD.**

If the extracted sold as readily as the comb at ⅔ the price, I would produce that. The trouble here is, that it is hard work to get rid of extracted honey at even a low price. **G. M. DOOLITTLE.**

I should prefer to raise extracted honey, but would raise as much comb honey as my home market would use. We work all our out-apiaries for extracted honey. We get twice as much extracted honey per colony as for comb. **E. FRANCE.**

You could judge best. If you know how, it will pay best to work for comb honey. In general I think it pays best to work for both, and I think the average bee-keeper will earn more working for extracted honey. I formerly succeeded best in producing extracted, but now I prefer comb. **A. J. COOK.**

During the past seventeen years I have managed my bees in each of the ways named. If I had a good market for both I would produce both. For many reasons I prefer extracting, if either is to be practiced exclusively. **L. C. ROOT.**

I don't think I know enough yet to answer this question. It is rather a question to be answered by each man for himself. I raise no extracted honey except some for my own table and some of my friends; but it is possible that, if I knew enough, I might raise both extracted and comb profitably. **C. C. MILLER.**

You will very likely do best with extracted honey; but no one but yourself can demonstrate it to a certainty. I produce mostly comb honey. The general rule is, extracted, where there is confidence in it, good market, and good price, and comb elsewhere. It is a good plan to build up a home trade in extracted while producing comb to sell to strangers. **E. E. HASTY.**

It is an advantage to make a specialty of one or the other, particularly in any one apiary, if you have more than one. I presume, however, you would do better to produce both, if you depend on a local market for the disposal of your honey. If you conclude to abandon one, the figures you give make it about an even thing as to which one you retain. **JAMES HEDDON.**

Well, you are lucky! If the climate is like that of Wisconsin, by all means try first raising extracted honey. You will never be quite satisfied till you have. After you have sufficiently tested it and noted the results in every direction, then make a specialty of comb honey. You will stick to this, and be contented. I could write quite an article on this subject, but you would not be satisfied half as well as though you had followed the above advice. I can raise comb honey cheaper than extracted, and with more satisfaction. **GEO. GRIMM.**

If you get only one-third more for comb honey and a good market for extracted, I would go entirely for extracted honey, as, considering the extra expenses of material, trouble of crating, risk in shipping, etc., extracted honey will pay as well if not better, with less trouble.—This depends on one's market, as, if I have better sale for extracted, I would certainly make a specialty of it, etc. I have no market for comb honey, unless I ship very far; hence I work only for extracted, although I always make a few hundred pounds of comb honey for my own use and for friends. **PAUL L. VIALLON.**

The above answers seem to indicate that the notions or feelings of the apiarist have considerable to do in this matter. George Grimm suggests that we try both ways before giving an opinion. With the modern improvements and facilities in the way of producing comb honey, it seems to me I should prefer it, even if the other did pay a little better. A woman might handle extracted honey, and not make a dauby mess of it; but I am afraid the average man never will, unless he has his wife, or employs women who are expert housekeepers, to attend to it.

QUESTION NO. 48.—*Does it make an appreciable difference in the quantity of honey stored, or in the case of manipulation of supers, to place the sections at right angles to the brood-frames instead of parallel, as is customary?*

I think not. E. E. HASTY.

We think not. DADANT & SON.

I can not say. MRS. L. HARRISON.

I can not see any difference. E. FRANCE.

I have had no experience with them at right angles. DR. A. B. MASON.

I can see no difference, after trying both ways for years. G. M. DOOLITTLE.

We have used them both ways, and have noticed no difference. P. H. ELWOOD.

It makes no difference as to amount of honey stored. The answer to No. 49 will explain why the sections ought to be parallel with the frames.
W. Z. HUTCHINSON.

Not any. I place them both ways, and can see no difference; but I wish a break-joint slatted honey-board between brood-chamber and section-case.
A. J. COOK.

If there is a space between the top of the frames and the case holding the sections, I think there will be little difference in the amonnt of honey stored.
L. C. ROOT.

Yes, sir; especially regarding the ease of manipulation of supers. I would never use an arrangement in which the sections run crosswise of the brood-frames. JAMES HEDDON.

I never could see that it made any difference in the quantity of honey stored. It might make a difference in the ease of manipulation. It depends on the kind of supers used. PAUL L. VIALLON.

I never tried it, but I don't believe it would make any difference in quantity. As my hives stand a little lower in front than rear, sections at right angles would hardly be so true. C. C. MILLER.

The hive should slope forward so as not to permit rain water to remain in it. How, then, can you place your sections crosswise and not have the combs hang crooked in the sections when taken off? I have tried it. It is a good deal like milking a cow from behind to handle them in that shape.
GEO. GRIMM.

It makes no difference, in my estimation, providing your hives stand level. Mine have a dip of about an inch toward the front, which is of advantage in several respects. Placing sections crosswise on my brood-chambers would make the lower parts of the combs lean out of the middle.
CHAS. F. MUTH.

I have for years been satisfied that it makes no difference to the bees. When I devised the chaff hive I experimented quite a little in reference to this matter, and made observations. We decided to have the chaff hive leveled up both ways. For all this, I have always had a liking for a hive with the entrance a little lower than the back end, as friend Grimm describes. In that case your sections should run parallel to the brood-frames. Friend Grimm's illustration hits the point exactly, especially where one has been long accustomed to having the sections run parallel to the brood-frames. Muth and Miller seem to agree with friend Grimm.

JUVENILE DEPARTMENT

Every boy or girl, under 15 years of age, who writes a letter for this department, CONTAINING SOME VALUABLE FACT, NOT GENERALLY KNOWN, ON BEES OR OTHER MATTERS, will receive one of David Cook's excellent five-cent Sunday-school books. Many of these books contain the same matter that you find in Sunday-school books costing from $1.00 to $1.50. If you have had one or more books, give us the names that we may not send the same twice. We have now in stock six different books, as follows; viz.: Sheer Off, Silver Keys, The Giant-Killer; or, The Roby Family, Rescued from Egypt, Pilgrim's Progress, and Ten Nights in a Bar-Room. We have also Our Homes, Part I., and Our Homes, Part II. Besides the above books, you may have a photograph of our old house apiary, and a photograph of our own apiary, both taken a great many years ago. In the former is a picture of Novice, Blue Eyes, and Caddy, and a glimpse of Ernest. We have also some pretty little colored pictures of birds, fruits, flowers, etc., suitable for framing. You can have your choice of any one of the above pictures or books for every letter that gives us some valuable piece of information.

CONDUCTED BY ERNEST R. ROOT.

THE BOYS' BEE-HIVE FACTORY.

HIGHEST HOPES BLASTED BY A BIG WIND. THE OLD WINDMILL TAKES WINGS AND—

THE winter having past, our two bee-hive makers began to make preparations for the next season's trade. They had already established a local demand for their hives and fixtures. The orders, however, were very small, for, with the exception of Sam's father, there were no very extensive apiarists in the locality. Most colonies were kept by farmers.

While Jimmie and Sam were piling up their lumber in the rear of the shop one day, farmer Dodge came in and said he would like about ten more hives, just like he got last year. This was the biggest order the boys had yet received, and they were considerably elated over the prospects for the season's trade. Ten hives would just about use up all the lumber they had left. Mr. Green had also promised to purchase more hives from the boys.

In order to get every thing in good working order, it was found necessary to make some repairs on the windmill. The poor thing was kept running every day the wind blew, all through the winter. There was no means of stopping, that is, turning it off, or throwing it "out of gear," as it is called, in such a way that the blades of the mill would cut the wind in two, as it were. As a consequence, the wooden bearings had become considerably worn. New bearings of hard wood were made, and the mill was otherwise repaired. When every thing was in readiness to get out the hives, the boys decided to set their shop going the following Saturday. The next Saturday came, but there was no wind—at least, not of any account. There was no help for it, so the boys contented themselves by planning how they would secure more orders. It was agreed that Jimmie should take the south road, and visit all the farmers who kept a few bees; that if these farmers had box hives, he was to urge them to try the new methods; using, as an argument, that a much larger amount of honey could be secured. Sam was to take another route with a similar purpose in view. As there was nothing particular to do that day, the boys decided to put the scheme into operation forthwith. Toward evening they met together, considerably tired out. Jimmie was disgusted, and out of patience. One old farmer didn't believe in "them new fixins." Another one said the bees would die in the "new-fangled hives." Still another averred he didn't want any more hives. There was one good-natured old farmer who gave him an order for one hive, and said he would try it; and, by way of encouragement, paid him cash in advance. This man had nice bank barns and every thing "up in style." But Jimmie declared that he was not going to do any more canvassing for anybody. He once tried book-peddling, and did not do any better. Sam, however, met with rather better success. He secured several small orders, and had them already booked.

As the season would be drawing near soon, the two boys decided that they would have to take advantage of the very first wind; and as they attended school they would have to do it outside of school hours. With the little money that the boys had scraped together they bought some more lumber; had it all nicely slicked up, right handy to their buzz-saw. But, alas for all their best-laid plans! They woke up one morning to find their windmill completely demolished—not by bad boys this time, but by a wind which did not seem to care whether the hives were made by spring or not. They found the tail of the mill several rods away. The fans were scattered all over the yard.

"That's too bad," said Jimmie. "My! that wind must have blowed awful hard last night."

"Well, I guess it did," said Sam. "It blew the covers off from nearly every one of pa's hives."

"Yes," said Jimmie; "that old apple-tree in the back part of our yard snapped clean in two."

The boys were talking and debating whether they should attempt to make any repairs, under the circumstances. Upon conferring with Mr. Green, the latter advised them not to try to do any thing with the windmill. He said he had long expected the mill would meet with the fate it did, and he was surprised it had stood the elements as long as it did.

"The trouble was," said Mr. Green, "there was no throw-off to the mill. If you will notice, most of the windmills on the farms are so constructed that, during a heavy blast of wind, the tail will turn the mill in such a way that the wind strikes it at an angle. If there should be such a wind as there was last night, the fans of the windmill would be parallel to the tail; that is, the mill would present a knife edge to the wind. Had your mill been so constructed, it would be standing now."

"Well," said Sam, "would you try to build another mill?"

"No: I believe you had better use some foot or hand power. Home-made windmills have never yet proven to be satisfactory. Sooner or later they are apt to meet the fate that yours did. But you boys have learned some valuable experience, and I do not begrudge the little money and time lost. It is possible I may get a small steam-engine. One would be extremely handy in many ways on the farm. A small Shipman can be obtained for about $100."

The boys, of course, were elated at this idea. If they could obtain more orders for hive-stuff, perhaps he would get one. Mr. Green said he would think it over.

JUVENILE LETTER-BOX.

I first thought the little folks were not going to respond to my call for observations in the matter of pollen; but just a little before we go to press with this form, the little letters come in all at once. We have sent them the presents which they chose, and we also extend to them our thanks. We are glad to encourage investigation. "Investigation" is a big word, little folks; but you will get hold of its meaning if you watch closely the bees. There is a practical bearing on this matter of looking up the first gathering of pollen. Friend Doolittle says: "This early pollen is that upon which our hopes depend for bees to gather our future crop of honey, if we have any."

THE FIRST POLLEN MARCH 23D.

I send my report. Bees brought in the first pollen March 23d, of a reddish color, from soft maple.

AUGUSTA FISCHER, age 9.

Crete, Saline Co., Neb., March 26, 1888.

POLLEN FROM SWAMP-ELM.

The first pollen our bees brought in was Feb. 1. It was from the swamp-elm. It was of a greenish yellow color. HATTIE HALL.

Sparta, Chick. Co., Miss., March 24, 1888.

POLLEN FROM PEACH-BLOOM.

I watched the bees to-day, and saw them gather pollen from peach-blossoms. The color was dark brown. The peaches are all killed here, so we shall eat none this year.

GERTRUDE F. WHITENER, age 10.

Hickory, N. C., March 24, 1888.

POLLEN FROM ALDER-TAG.

I saw the bees gathering pollen from alder-tag, January 31. Color was yellow. I saw them gather pollen to-day from Easter-blossom. The color was yellow. EUGENE H. WHITENER, age 9.

Hickory, N. C., March 30, 1888.

POLLEN FROM WATER-ELM.

About the 1st of February the bees bring the first pollen from water-elm. It looks yellow. About a week later they bring some from slippery-elm and wild plums, which is of an orange-color. My pa has 50 colonies—40 in large hives, and 10 in little hives where he raises queens to sell. When pa fixes his bees for winter he takes out the combs from the upper story and puts in cotton-seed.

AUGUST OBERKAMPF, age 11.

Crane's Mill, Texas, March 30, 1888.

POLLEN FROM ELM.

As my brother keeps bees, I noticed very carefully the first pollen. It came in on the 31st of March. They got it from the elm and maple. The first was yellow, the second was of a yellowish red, or a kind of purple. **CLINTON NEFF.**

New Carlisle, O., March 31, 1888.

THE FIRST POLLEN AS REPORTED BY A JUVENILE.

In response to your request of March 15, I noticed our bees gathering pollen on the 27th of January, from a wild plant we call thistle. It very much resembles the poppy. Mamma says she has seen it cultivated in Pennsylvania, as one of the poppy family. They grow in profusion here. The bees work on the leaves as well as the flowers. The blossoms are white and lilac; also a shrub, growing wild, called alvacoco. It bears a fruit, somewhat like the wild plum, but smaller. It is a great bloomer. The pollen was white, or light-colored. Bees have not done very well this winter. Many of them are having their hives well filled with stores.

ORIE WALKER, age 8.

Benton, Texas, March 25, 1888.

Friend Orrie, will you please mail us the posy from that "poppy" thistle? I think it is something I never heard of before. I am interested in those little plum-trees. Are the plums good to eat? You have given us quite an interesting little letter.

POLLEN FROM PEELED LINN LOGS.

The bees commenced bringing in pollen on Monday, March 23, 1888. It was of a light cream color. They did not gather it from blossoms, but from peeled linn logs. Pa has a sawmill of his own to saw logs for sections. The logs were peeled for the purpose of drying sooner, and for keeping the acid that is in the bark from staining the timber, as there appeared to be, by the action of the air and sun on the surface of the logs, a mucilage that became dried, and the bees gathered quite freely of it, as there are about 500 logs to gather from.

RAY MURRAY, age 12.

Ada, Ohio, March 23, 1888.

Look here, little friend. I shouldn't wonder if you had got hold of something of more importance than pollen. One of our great troubles in buying basswood, or in handling basswood plank, is to prevent the lumber from getting stained; and if peeling the bark off from logs will do it, it is something very valuable indeed. I wish you would have your father tell us what he knows about the matter.

"BEES ALL OVER DUSTY WITH POLLEN."

I have watched every day the bees flew since I saw that notice. To-day, March 30, I saw the first pollen. It was of a light color, and the bees were all over dusty with it; and when they would go into the hive and out they would come out all covered with the dust. Then I knew they were the ones to watch. I had a little trouble to find out, but at last I found them about half a mile away, and right down over the hill; but I followed them till I came down on the flat, and there I found them on what we call tag-alder. The color of it was light but not white. I could take the bushes and shake them and see the dust flying off.

Papa started in winter with ten colonies of bees, and we have wintered all up to date. The hives we wintered in are the Langstroth chaff, and they wintered outdoors on their summer stands.

Polk, Pa. **J. T. HAGERTY.**

A GOOD FLY.

Mother has 12 hives of bees, and got 250 lbs. of honey last fall. They took a good fly March 27.

MAY HOUSER, age 11.

Franklin, Pa., March 29, 1888.

A TEXAN PONY.

I have two pet rabbits. They are black and white spotted. They are English rabbits. We have a Texan pony. He is wild yet. He had never seen snow till Saturday. He got scared when he saw it. He has been out of the herd only about three months. I can lead him to water. He would not eat hay when we got him.

La Fontaine, Ind. **OREN A. HUMMEL, age 11.**

ARTHUR'S LETTER, JUST AS HE WROTE IT.

MR ROOT I AM 7 yEARSOLD My GRAND PA KEEPS BEES I WILL TELL yOU HOW HE KEEPS MICE OUT IN WINTER HE TAKES A WRIE AND PUTS IT IN THE HOLE WHERE THE BEES GO IN SO THAT TH BEES CAN GO UNDER IT OR OVER IT BUT THE PLACE IS SO SMALL THAT THE MICE CANT GET IN. I GO TO SCHOOL

MORENCI, MICH. ARTHUR G. MASON.

CANNING SWEET POTATOES IN HONEY.

Parboil the potatoes; take them up and peel them; slice them the round way, then drop them in a kettle of hot honey. As soon as boiled, fill the cans with the potato. Seal them tight; then in winter, when you use them, put them in a pan, put some butter in, put the pan in the stove, and bake until they are done. **SADIE BROWN.**

Bloomfield, Ky , March 29, 1888.

BEES WINTERING WELL.

My pa has kept bees for over 25 years. He is now wintering 150 colonies—50 in the cellar, 50 in a cave here at home, and 50 in two different places away from home. Last year was a very poor one for honey. Pa got only 200 lbs., and over 10,000 lbs. in 1886. He has to feed part of his bees to save them. They are wintering quite well.

CLARK GAST, age 9.

Le Clair, Iowa, March 26, 1888.

HOW TO MAKE BOYS GROW.

I am a little boy ten years old. I go to school, and study reading, spelling, arithmetic, and writing. Pa has 50 stands of bees. I get a sting sometimes. It makes me scratch a little. I have a dog. I call him Jack. I have a little baby sister, Ola; she is just as sweet as she can be. I have to feed the pigs. It is pretty cold here sometimes, but ma says it will make me grow, so I don't mind it much. Pa takes GLEANINGS. He would not do without it.

Danville, Hendricks Co., Ind. **OTHA NICHOLS.**

ANOTHER RUNAWAY.

I have never written to you before; but as Hattie is writing, I will write too. We have no bees, but uncle John Wright has. I love honey. We have been having so much rain that we have been nearly drowned. The lanes are impassable. Last year a team ran away. The horses got away and ran over the bees, and they got out of their hives and scattered all over the yard. Uncle John moved to town this year, and left the bees at his old home.

MARY RUTHERFORD.

Milford, Ellis Co., Tex., March 7, 1888.

A MEDLEY OF GOOD THINGS.

Grandpa has 22 colonies, and they are doing well. Two hives of bees have died this winter. We have 35 goats now. They are very mean. We have 101 chickens, one dog, and one cat. I have caught six rabbits this winter. We have nine horses and eight cows. We milk two cows. **Clarence Carter.**

Henry, Tenn., March 5, 1888.

LOTS OF RAIN IN TEXAS; DELICIOUS MEDICINE.

It has been raining every week for about three months. We have such bad weather that there is scarcely any traveling. We have our bees out in the country. We haven't had any honey for a long time. I used to enjoy the trips out in the country, but, most of all, the eating of honey. We fed our bees on sugar last summer. I like honey so well that, when I have a bad cold, I always use that as medicine, because it is delicious.

Hattie Dickson.

Milford, Tex., March 8, 1888.

BEEN VERY COLD.

I live in the country. I am almost 12 years old. I go to school not very far from my house. I am in the last room in the third class. I shall have to go four more years. I think I shall have to go into the first class two years. My father keeps bees. It has been so cold out here this winter that my father has lost four hives of bees.

Eddie W. Bennett.

New Bedford, Mass., Mar. 4, 1888.

GOOD PROSPECTS FOR TEXAS; PLENTY OF RAIN.

I am a little boy 9 years old. Papa has 18 stands of bees. They have plenty of honey, and are in good condition. It has been dry for two years, but it has been raining a great deal this winter, and horsemint is coming up everywhere. They bring in pollen every day when they can fly, and they are getting honey from plum-blossoms.

Charley Wright.

Reagan, Texas, Mar. 4, 1888.

THE CHINESE NEW YEAR'S DAY; HOW THEY MAKE CANDY.

Dear Mr. Root:—The Chinese here in Shaowu are now getting ready for their New Year's day. Every family makes at least one kind of parched rice and candy. To make the parched rice they take the glutinous rice, soak it a day and night, then steam it so that each kernel is separate. After it is thoroughly dried it is parched in a *teeang*, which is an iron vessel shaped like a large butter-bowl with a rounding bottom, and two or more feet across the top. When parching they put fine sand in the *teeang*, heat it nearly redhot, then put in a small handful of rice, cover it up with the sand till it begins to pop; then it is kept in constant motion till all is popped, when it is all put into a fine bamboo sieve and the sand is sifted back. When the rice is all popped they boil some molasses till it is ready to candy, then pour the rice in. They have it measured so that there is just enough molasses to moisten the rice and make it stick together. It is then put into a box about two inches deep (made so the sides can be taken off), and is rolled down hard with a rolling-pin, then cut into long strips, which are cut in square and diamond shapes two or three inches long. Then store it in jars, and keep it in a cool place two or three months, to give to every one who visits them.

Josephine C. Walker, age 13.

Shaowu, China, Feb. 10, 1888.

TOBACCO COLUMN.

CONDITIONS UNDER WHICH WE GIVE SMOKERS TO PERSONS WHO STOP USING TOBACCO.

First, the candidate must be one of those who have given up tobacco in consequence of what he has seen and read in this department. Second, he promises to pay for the smoker should he ever resume the use of tobacco in any form, after receiving the smoker. Third, he must be a subscriber to Gleanings. Any subscriber may, however, have smokers sent to neighbors or personal acquaintances whom he has labored with on the matter of tobacco-using, providing he give us his pledge that, if the one who receives the smoker ever uses tobacco again, he (the subscriber) will pay for the smoker. The one who receives the smoker in this case need not be a subscriber to Gleanings, though we greatly prefer that he be one, because we think he would be strengthened by reading the testimonials from time to time in regard to this matter. The full name and address of every one who makes the promise must be furnished for publication.

A LITTLE TOBACCO STORY WITH A GOOD MORAL TO IT, AND ONE THAT "YOUNG AMERICA" SHOULD READ.

I WANT to give you something on the tobacco subject that I wish you in turn to give to the world—not that I could give you any pointers on this subject, for few understand it better than you; but knowing something of the money and influence you are using every year to "down" this evil, I thought you would gladly publish what I have to say. I learned to smoke when I was about 16 years old, only an occasional cigar. The habit grew on me year after year, until I got so I spent a lot of money for cigars, and I helped to draw others into the habit by treating to cigars. At a moderate estimate I will place the figures at $30.00 per year that I spent for cigars. I finally got to using a pipe. My health was poor. I was often laid up from work for weeks at a time. I was confident that smoking was an injury to my health, but I *thought* that I could not give it up. Well, in the spring of 1886 my father said to me, "If you will stop smoking I will give you a swarm of bees." I accepted the offer, and received the bees with the firm determination to stick, and to keep a record of the proceeds of the swarm. As a record, I am a healthier and wealthier man. The result for the two seasons is as follows:

Comb honey in sections, 353 lbs., and an increase to 9 swarms.

The honey was sold for 15c per lb.,	$52 95
Placing the swarms at $8.00 per swarm,	72 00
Tobacco for two years,	60 00
	$184 95

You can place better health and influence at any price you have a mind to. I propose to keep a record of the swarms and proceeds from the one, and with a stencil-plate I letter each hive with the word "smoke," so that I can tell at a glance which they are; and finally, with good management and success, I expect to start an out-apiary with them alone.

Now, Mr. Root, the one, if any, who is entitled to a smoker is Mr. Johnson King, Eau Galle, Dunn Co., Wis. He is over 70 years old, but still tends to his bees. Please send my neighbor, Mr. R. B. Oaks, Ellsworth, Pierce Co., Wis., a smoker. After the use of tobacco for many years he stopped the use of it this winter, through the influence of his good wife and your efforts. If he commences the use of tobacco again, I will pay you for the smoker.

W. C. King.

Beldenville, Pierce Co, Wis., March 6.

Friend K., you have made a good point indeed; and if the arguments you give are not convincing in regard to the tobacco-business, one must be dull indeed. We will send smokers to both of the addresses you give.

IN BEHALF OF A NEIGHBOR.

Mr. J. B. Ellison, of this place, requested me to say to you that he has quit using tobacco, and wishes a smoker. If he ever uses it again he will pay you for the smoker. If he does not pay you, I will. ELI BORDEN.

Franklin, Robertson Co., Texas.

ONE OF THE GIRLS WHO READS GLEANINGS PROMISES TO GIVE UP TOBACCO.

One of my neighbor's girls quit the use of tobacco. I told her you would send her a smoker if she would, and I am satisfied she will not use it again. Her address is Fanny Ruttenbur, Grant City, Worth Co., Mo. MARY CONARD.

Grant City, Mo., March 17, 1888.

God bless you, friend Mary, for stirring up your own sex to the requirements of the times in regard to this matter of tobacco. Tell your neighbor's girl that Uncle Amos would like to take her by the hand and bid her God-speed in breaking away from the vile habit. Is it indeed true, that girls as well as boys use tobacco in your State? My good friend Mary, we are going to pray for you too, that you may not be weary in well-doing in this needed work.

HAS BROKEN HIS PLEDGE, BUT PAYS FOR THE SMOKER.

Please find inclosed postal note for $1.25. The reason I owe you $1.25 is, I can not stop using tobacco. J. FRITZ.

New Portage, O.

May God bless you for your prompt remembrance of your promise, friend F., even if you have confessed yourself a slave to tobacco. May be some of you will think it out of place in this Tobacco Column to say what I want to say just now; but perhaps you will accept the fruit of it, even if you do not all indorse my views. The idea is this: I want to ask the friends of GLEANINGS who feel as I do about this case, to unite with me in praying that friend F. may have grace to give up tobacco again, and hold out. Now, friend F., we expect to hear from you again in reference to this matter.

ANOTHER SMOKER WANTED IN BEHALF OF A NEIGHBOR.

A friend of mine, seeing your promise to give a smoker to any one who will quit the use of tobacco, has quit. His name is Geo. McAlravy. He asked me to write for him, and have you send the smoker to me; and if he ever uses it again I give you my promise to pay you for it myself. D. H. CAMPBELL.

Carrollton, Carroll Co., O., Feb. 17, 1888.

That is the kind of pledge, my good friend C. This business of getting your neighbors to quit, seems to promise to open up a great field in this work. Who can tell where it may end, if each one who loves godliness and purity commences to do personal work among his neighbors? Do not be backward in asking for smokers. Moody once said that God would always furnish all the money and strength that any of his children need to help them in working for Christ's kingdom, and I believe it. God will furnish the wherewith to pay for the smokers.

OUT OF BONDAGE AFTER 25 YEARS OF SLAVERY.

I am ashamed to say so, but after a long struggle (after using it for 25 years) I have given up tobacco in every form, I hope, for ever. Now, brother Root, go on in the good work, and still let your light shine. There are thousands looking to you for counsel on their pilgrim journey. You will find me all right yet. WM. D. TITCHENELL.

Pleasant Hill, Preston Co., W. Va., March 8, 1888.

Friend T., I suppose you mean you are ashamed of 25 years' slavery; surely not that you have broken the bonds, and stand before us a free man. May God help you.

GOOD FRUIT FROM A CAMP-MEETING.

For about nine years I used tobacco, the most of that time chewing and smoking, and had become so addicted to its use that manufactured tobacco as bought at the stores would not satisfy the appetite. I used the natural leaf, or "home-made," as it was the strongest I could get. In August, 1886, I attended a Holiness camp-meeting in Jamestown, Mich.; and during that meeting I resolved that, God taking away the appetite, or giving me grace to overcome it, I would quit its use. I threw pipe and tobacco away, and, praise the Lord for *keeping* grace, I never have used it since, and never expect to. I would say further, that the appetite was taken away, so that I have never craved its use since I threw the weed away. CLINTON GIBSON.

Monterey, Mich., Feb. 27, 1888.

Friend G., this matter of having the appetite taken away has stumbled some of the brethren. Is it really true, that God takes away the appetite from some and will not from others? I can not think so. May I suggest the reason why you are delivered from even temptation in this direction? You attended the camp-meeting, and very likely there heard powerful sermons against sin in every form. You began hungering and thirsting after righteousness. Even the old sins which you clung to, under the influence of the divine Spirit became hideous in your sight. Under the inspiration of the work there going on, you rose up with such energy and full determination to shake off Satan's shackles that you became virtually a new man. You turned squarely away from the enemy, and put out your hands to Christ Jesus. There was no looking back, nor dwelling even in thought on the old habit. The consequence was, you were lifted so completely above this loathsome sin of the flesh that you have had as yet not one desire to go back there. The promised land is so much better and so much pleasanter in a thousand different ways, that you would be foolish indeed to think of going back to the old life. Now, any one, I think, may have just this experience. Whosoever will may come. But, dear brother, I warn you to beware of Satan yet. Even though you have felt no craving for tobacco for, say, over a year and a half, I rather think Satan will give you a tussle yet—perhaps some time when you least expect it. While God permits us to stay here on this earth, we are yet human. "Let him that thinketh he standeth, take heed lest he fall."

OUR HOMES.

Honor the Lord with thy substance, and with the first-fruits of all thine increase: so shall thy barns be filled with plenty.—PROV. 3: 9, 10.

THE CONCLUDING CHAPTER OF "WHAT TO DO, AND HOW TO BE HAPPY WHILE DOING IT."

It is nearly two and a half years since this book was commenced; and now I am writing the last chapter. In this chapter it would naturally transpire that I should emphasize the most important part of the book. Well, dear friends, what is of more importance than all things else in deciding "what to do?" and what one thing will be more likely to make us enjoy the work God has given us? or, in other words, what will be most likely to help us to "be happy while doing" this work that I have been trying to map out for you? Why, I think we shall find that the text at the head of this chapter hits the point exactly. "Honor the Lord with thy substance." Very likely some of you will say, "I am too poor. I should be glad to give something to the churches and various benevolent enterprises; and whenever I am able, I will do so." My friend, I think you are entirely wrong. In the first place, no matter what your circumstances are, if you have strength that enables you to get to church, go to church. Go and take your wife and children. If you are not able to go, send them; but never send the wife and children to church and prayer-meetings and Sunday-school unless you are disabled by health from going yourself. Of course, I don't know how many of my readers are in the habit of absenting themselves from public worship; but I am sure I am right when I say you can not afford to stay at home. You can not afford it pecuniarily, and you can not afford to risk your happiness by remaining away. Possibly you are comparatively happy in your daily employment, without attending church. But I think a regular attendance would make you ever so much more happy. In fact, one who stays at home from church does not half enjoy any thing. Of course, I am giving this as my opinion; and if you purchase my book and read it, you will expect to get my opinion. You have some confidence in my ability to direct and teach, else you would not have read thus far. Now, then, my friend, go to church. If you have not been in the habit of going, start right off. If you haven't clothing as good as you think you ought to have, go with the best you have. I agree with the world, in thinking that we ought to put on our best habiliments when we enter the courts of God. I have studied over this matter a good deal, and I can not imagine any reasonable excuse for neglecting church attendance.

Now, attending church is excellent of itself; but the next best thing is to contribute to the support of said church. The oft-repeated argument, that you are "too poor," I shall not accept at all. If you can not do any better, drop a penny into the contribution-box when it comes around. Nobody need see how much you put in, and I don't suppose it matters very much if they did see. God sees, and it is before him and to him that you are doing it. Remember what Jesus said of the widow woman and her two mites. Give something. Give regularly. Don't go by fits and starts—a nickel one day, twenty-five cents another, or may be a dollar when you feel like it. Decide how much you can afford to give every Sunday, and give it. You may contribute by the year if you choose. But even if you do, put something into the *contribution-box* regularly; do as others do, and set an example. I think it is a very good idea to give liberally. I think you will make it pay both financially and in being happy, as I have told you. I feel like saying I don't really *think* any thing about it; I *know* you will feel better to make a start in "honoring the Lord with thy substance," as our text has it. Why, my friend, it is the first stepping-stone toward genuine prosperity—the prosperity of yourself, the prosperity of your family, the prosperity of your neighborhood, your town, county, State, and nation; aye, and the prosperity of the whole human family, the whole world, and this whole wide universe. The being who can gaze upon this universe, without any recognition of the God of all, is not worthy of being one of mankind. Have the children go, and have them give something. They will probably give to the Sunday-school. By the way, I think you ought to go to Sunday-school too. If you think you can't stand it to go to both, go to church first. Don't miss the sermon that God has provided for you. It may be a very poor one, but that does not matter; you can not afford to miss it. The sermon will be better if you go than if you stay at home. Now, don't try to evade this nor dispute it. Ask your pastor if it is not so. Every good man who honors the Lord with his presence assists the pastor, and inspires him in delivering God's message. No minister can preach great sermons to a very small audience; that is, he can not do it very long, and God will not let him do it very long.

We will suppose you are doing a fair business, according to the instructions of these previous pages. You are getting along comfortably. What part of your earnings shall be given to God's work? The bible indicates one-tenth; but I don't think it is very important we should take any very great pains in being percise in the matter. If you try to be precise, some will say, "Is it to be a tenth of your net gains, or a tenth of your wages?" But I don't believe it is very well to try to be exact either way. If you say net gains, a great many will say they don't gain any thing—in fact, they are going down hill. A man who is going down hill is the one, I think, who does not give any thing to God's work. Now, don't accuse me of urging a man to give money to the church and to the minister that he has no right to give. I told you, in my last talk, that we must apply reason and common sense to religion as well as to any thing else. I have heard people tell about those who give money to the Lord that ought to have been used in paying their debts. I do not believe in this kind of work. But. now, don't rush to the conclusion that the man who is in debt shall not give any thing. If such were the case, almost all of us could excuse ourselves from giving. Aside from paying your debts, you have money to purchase food and clothing—may be books and a few luxuries. Give the Lord a part of this sum. If you can not scrape up a little money in any other way. eat less and plainer food. A young friend of mine was once lamenting because he could not put any thing into the contribution-box, because he had no work during that winter. We had union meetings around at the different churches; and during one of these meetings, when the contribution-box was passed, it suddenly dropped into his mind that, if he should stop using tobacco, he could take the money it cost and put it into the box. He tried to get rid of the idea, but he never got over it—yes, he did get over it after all. Do you want to know how? He asked God to help him break off, and made it a special plea in his prayer that he might have help to invest the money in God's work instead of tobacco. He slipped off the shackles of tobacco, and came out bright and happy; and you, my friend, can slip off something, I am sure. You can make some sacrifice for Christ's sake. Oh, what a bright and happy experience comes with parting with things of this kind for *his* sake. And now a word about the latter part of the title of my book. Suppose we make the heading of it this: "HOW TO BE HAPPY."

Christians have a great deal to say about being happy. Some of them talk extravagantly about the great happiness and the floods of joy that God pours into their hearts. I have at different times had something to say in reference to this. Some have these exalted seasons and others do not. The ones who do are very often the same chaps who, at other times, have gloomy spells. I do not like to say much about these seasons when God has seen fit to lift me above the cares of this earth; but perhaps I may mention them in this concluding chapter. These seasons of keenest and most intense enjoyment come to me after having made some sort of sacrifice—after I have been working for *his* sake.

A few months ago I felt as though duty called me off to Michigan. I did not want to go, but I went, a good deal from a sense of duty; and for quite a time I didn't have very much enjoyment either. My mind was constantly on things at home. I was gone several days, and worked hard; but no particular feeling of approval came into my heart. I began to think that perhaps God had decided that I was getting to be too old in the Christian life, to need commending as we commend a child, and that my faith was getting strong enough so it was not necessary to encourage me as we encourage a child when he does well. "Well," said I to myself, "if this is what God thinks, all right. Thy will, not mine, be done."

When I got home they wanted me at a farmers' institute, in a neighboring town. Every thing needed me sadly at home, and there was no way to get to this neighboring town but across the country, through fearful roads. Why, it took us four hours to go nine miles. The mud was freezing at every step. I should have felt a little sorry for the horses; but a good stout team that did not have much to do, pulled two of us with comparative ease. Well, now, if you should ask me to mention some of the happiest experiences, spiritually, that I ever knew, I should tell you that one of them was while at that farmers' institute. It was before the meeting began. No one was speaking, and there was nothing that had occurred, that I know of, to make me particularly happy. I just sat there waiting for the meeting to open; but while seated on that bench a flood of joy and peace poured down into my soul until I felt as if I could hardly bear more. It is true, there was a large crowd assembled in the hall; but I was very slightly acquainted with this crowd. But there was a feeling round about me that I was in the midst of friends. Don't think me visionary when I say that the words *invisible friends* seem to tell it better than any thing else I can describe; and something seemed saying to me, "Well done, thou good and faithful servant. You have denied yourself for me, and have been working hard, as well as you knew how, for the good of my people. Fear not. Trials and difficulties and conflicts await you: but be not disheartened nor discouraged. I am with you, and will never forsake you." It may be years before I shall have a similar experience; but the recollection of that time will sustain and strengthen me, I hope, for years to come.

In thinking of this experience afterward, I decided there was probably some reason for it, which I had overlooked and forgotten. Well, if you will look on page 954, GLEANINGS IN BEE CULTURE for December 15, 1887, you will get a hint of it. While I sat there at the institute I did not know any thing about the outcome of my talk that day on the cars; in fact, I had forgotten all about it; but I have heard of it since, and here is a letter from the young friend himself. At the time I talked with him on the cars, he objected to any sort of publicity; but you will notice in the conclusion of the following letter, that all of that feeling has gone. He is quite willing now to stand up before the world, like Paul of old (or any other *new-born soul*), and testify for the Master.

Dear Brother Root:—I know you have thought of me a great many times since we parted at White Cloud on our way home from the State Convention, and wondered what the result of our talk on the train proved to be. Well. from that hour I began trying to be more of a Christian than I ever had been before. After getting home and talking with my wife and one of the members of the church, we made application for membership. But on the Sabbath that we were to be admitted to the church, the minister was sick and could not come, and has been here only twice since; but last Sunday we were admitted, to the delight of the whole congregation, and I hope to the salvation of our own souls. The ceremony to me was very impressive, and I know I shall never forget the first sacramental supper; and if I ever offered an earnest mental prayer for strength and guidance, it was on that occasion; and, God being my help, I will be true to the trust and faith.

During all these weeks when we have had no pastor we have kept the Sabbath-school up, and increased its numbers. Every Sabbath has found me there, and several times I have been chosen to lead the Bible-class; and I have been surprised to find how easy it was for me to talk; in fact, I did not know I could talk so well On these and other occasions I have used the same argument that *you* did with *me*, and I know you will be glad to learn that, as soon as our neighbor's wife recovers from a bed of sickness, two of our most influential men and their wives will become members of the church. These men have always helped the church by their attendance and money; but they agree that, to do all this and still not be fully identified with the church, is setting a rather *bad* example instead of a *good one* to those outside the church. I shall expect many more within the year; and I feel, dear friend, that you are the leaven of whatever the result may be. I shall carry the matter into my business relations, and hope to do some good through my extensive correspondence. I shall be glad to advise you from time to time of the results if you would care to hear. We are very happy in our new relations, and with our little Huber. You are *now* welcome to use any part or all of this in any way you choose. I have *now* no objections to my name being used with it, if it will do any good.

I am your brother in Christ,—

GEORGE E. HILTON.

Fremont, Mich., Feb. 28, 1888.

The point I wish to make in giving the above letter is this: Happiness does not come to those who seek it or chase after it. He who makes his first and foremost effort in life to find happiness will fail miserably. The Savior makes the matter very plain in that wonderful closing-up of the 25th chapter of Matthew. You remember that those who had been working for their fellow-men had entirely forgotten about it. When the Master commended them they replied, "Lord, *when* saw we thee a hungered, and gave thee meat? or thirsty, and gave thee drink?" etc. These people had not been working for happiness, for they had been doing their duty unselfishly. They had no expectation of pay, or of reward; but even though they *had forgotten* all about it, the *King* hadn't; and he was so much pleased with the work they had been doing that he says, "Verily, I say unto you, inasmuch as ye have done it unto one of the least of these my brethren, ye have done it unto me." Perhaps it will do no harm to say here, that friend Hilton is none other than the President of the Michigan State Bee-Keepers' Convention; and the effect of his going into that little church in the backwoods of Michigan, with his honest, childlike energy and devotion is not at all surprising. No wonder he took along with him two of the best men in the town; and in accordance with the teachings of friend Terry, Prof. Cook, and others, they took their *wives* along with them. Did it ever occur to you, dear friends, how much *six* active, influential men, and women can do to help along the cause of righteousness in *any* community?

Now, then, you are to get your allotted portion of happiness by doing your duty, whether you feel like it or not; and the most important duty that I can think of now at the close of this book is the one of attending church service, no matter whether you feel like it or not. No matter if you do not feel well. If you have headache or sore throat, you will have the headache or sore throat if you stay at home; and after having tested it hundreds of times, I am satisfied that these aches and pains are worse at home than when you are at church, in the path of duty; but even if they are not, you ought to go. Go from a sense of duty, and not because you feel like it. If you get into the habit of going to meeting when you don't want to go, it seems like a sort of break in the ice in the way of taking up other duties you know you ought to take up, but which you do not wish to take up. It will be a great deal easier for you to give up tobacco if you go to church every Sunday than it would be otherwise. It will be easier for you to be honest; it will be easier for you to say, in a thousand ways, "Get thee behind me, Satan." Toward the close of the Old Testament there is another promise. This promise refers particularly to our giving toward the support of the church and minister and Sunday-school. It reads:

> Bring ye all the tithes into the storehouse, that there may be meat in mine house, and prove me now herewith, saith the Lord of hosts, if I will not open you the windows of heaven, and pour you out a blessing, that there shall not be room enough to receive it.—MAL. 3:10.

What do you think of that, friends? Perhaps you do not believe it. The prophet Malachi, in order to make it plain, supposed a case. He answered some of their apparently unfounded objections. They wanted to know wherein they had been remiss in their allegiance and in their duties. He told them, "Ye have said, It is vain to serve God: and what profit is it that we have kept his ordinance, and that we have walked mournfully before the Lord of hosts?" I suppose *you* have heard people in your vicinity and neighborhood ask what good it would do to put on a solemn face, and mope along mournfully with Christian people. They *knew* they were bad and weak, and so they make these *excuses*.

Is that the case with you, my friend? or are you ready to say, "Mr. Root, I know I ought to go to church. I thank you for hitting me as you have in this closing chapter, and I am going to start out at once"? If you do that, my friend, I shall not have any fear. I shall be happy to know that you have succeeded in gardening, with small fruits, and in raising plants, etc.; but I shall be a thousand times happier to hear that while you have been helped by this book I am just closing, in the way of finding something to do, you have also learned, *through the grace of the Lord Jesus Christ*, the true secret of being "*happy while doing it.*"

THE END.

REPORTS ENCOURAGING.

FLORIDA; THE ORANGE-BLOOM HEAVY.

THE bees are doing well this spring, and we shall have a fine lot of honey. The orange-bloom has been unusually heavy, but we had so much rain during the time of bloom that it has in a measure cut off the yield. The scrub-palmetto will be in bloom in a few days now, and the bees will gather honey from that. We shall also sow our grove with Japanese buckwheat, which does well so far as tried. We had a few seeds from a neighbor, and sowed a small patch near the hives, and the bees were at work on it before it was fairly in bloom. MRS. A. L. FORD.

Orlando, Fla., March 7, 1888.

FROM 4 TO 11, AND 300 LBS. OF HONEY.

We started with four colonies last spring; increased to eleven, and received 300 lbs. of honey; pretty good for a starter. We are making our own hives this spring. We got a combined machine, so we can do the work very well. I. REEDER.

Everett, Neb., Mar. 25, 1888.

NEW SWARMS.

Bees are doing pretty well for the late spring we have had. They commenced work Jan. 28, but have had so much rain and cold weather that they have not built up very fast. I had my first swarm last week. We get no propolis until the middle of May. J. W. ECKMAN.

Richmond, Tex., Mar. 29, 1888.

ALL ALIVE BUT TWO.

My 31 stands of bees in chaff and Simplicity hives put in winter quarters last fall have all come through all right. Four stands in Dr. Tinker's hive were fixed in the same way, and two of them died. The other two I am feeding. SAMUEL C. WARE.

Towanda, Ill., March 9, 1888.

WINTERED WELL.

I am very much pleased with the statistical reports in GLEANINGS. You may depend on me for reports. Bees have wintered well so far. Clover will not be killed, as there is three feet of snow on the ground. FRANK DURRAND.

Esdaile, Pierce Co., Wis., March 9, 1888.

THE FIRST POLLEN.

The bees gathered the first pollen on the 21st and 22d inst. Bees have wintered well so far, and are in good healthy condition—that is, the Italians are. I think that most of the black bees that have not been fed will die. They did not gather nearly the amount of honey that the Italians did. I have two black colonies, and I have to feed them or they could not live until fruit-blossom. W. H. KLINE.

Bolivar, Tuscarawas Co., O., March 26, 1888.

FROM 1 TO 6, AND 60 LBS. OF HONEY.

Last spring I commenced with one colony of Italians; increased them to four. They made 60 lbs. of surplus honey in sections, after filling their brood-chambers full. It was mostly of buckwheat and goldenrod. It was so very dry here that there was not much clover honey made. I winter them on their summer stands, packed with chaff. They have had a fly but once since the 15th of Dec., and that was the 24th of Feb. Honey brings from 15 to 18 cents per pound. JENNIE P.

McLane, Pa., Mar. 1, 1888.

POLLEN FROM SKUNK CABBAGE.

Bees are in good shape at present; from 2 to 4 frames with brood April 3; bringing in pollen from skunk cabbage now. We lost only 2 out of 51, outdoors on stand. HENRY KINNEY.

Amber, N. Y., April 6, 1888.

"BEES ALL IN GOOD CONDITION."

My bees are all in good condition. My loss this winter on summer stands is only one colony; but, of course, our climate is so mild we don't have to winter in cellar or chaff. G. H. REED.

Anneville, Tex., Mar. 12, 1888.

GOOD PROSPECTS FOR A LARGE HONEY CROP.

My 66 colonies and about the same number of my neighbor Schlimper's have wintered well, and have from 5 to 6 frames of brood. Prospects for a large honey crop are flattering. J. GERARD.

Brackettsville, Tex., Mar. 12, 1888.

BRINGING IN POLLEN.

My bees have wintered very well so far; are carrying in natural pollen. They commenced gathering pollen the first of this month. They are all in A. I. Root's chaff hives, and wintered on summer stands. They commenced raising brood in February. JOHN LANGLEY.

Widnoon, Pa., March 4, 1888.

WINTERING NICELY.

Our bees are wintering nicely, and had a good fly March 1. A small swarm came and settled in my bee-yard yesterday, and I put them in an observatory hive and fed them, and have them in the kitchen. I took 500 lbs. of comb honey from 50 stands last season, and sold it for $100. I winter on summer stands. J. R. MORRISON.

Bates, Ills., March 2, 1888.

IN GOOD CONDITION.

I started last spring with six colonies, and bought four of O. H. Townsend, Alamo, Mich., which were in tiptop order when received. These gave me 10 colonies to start on. I increased to 27, and procured 2100 lbs. extracted honey, and enough for them to winter on. At this date they are all in good condition, having wintered in chaff hives, out of doors. MATTHIAS SCHNEIDER, JR.

McIvor, Mich., Mar. 21, 1888.

NEW HONEY IN TEXAS.

I had 6 swarms of bees on the 21st, which settled together. I divided into four swarms. These are doing well. Then 6 swarms came out on the 2d. I divided them into 4 hives, giving them comb. On the 24th in the evening, all came out and went off, but I don't know why. I extracted 80 lbs. of honey today—some new honey and some last year's honey, from 3 hives. All are doing very well at present. I have 62 hives now. J. T. BOND.

Cline, Tex., Mar. 26, 1888.

NONE LOST.

I have frequently seen bees fly, but never as they flew to day. It is really the first good fly they have had since last November. About 9 A. M. they just swarmed out until the air and the fronts of the hives were black with them. Out of 85 last fall, not a single loss, and bees are in excellent condition—not a bad record for the "unbearable" chaff hive, is it, Bro. Root? I say, tally one more. Mercury at 9 A. M., 60. GEO. E. HILTON.

Fremont, Mich., Mar. 19, 1888.

REPORTS DISCOURAGING.

NOT A SINGLE POUND.

THE year 1887, with us, was a hard one on bees and on bee-men. I began the season with 43 colonies (in Simplicity hives), all in splendid condition. I did not get a single pound of honey nor a swarm during the entire year, but lost, by starving and doubling back to 25 colonies at the beginning of winter. We fed out about $20.00 worth of sugar during the year. We now have 24 weak stocks on hand. We are not the least discouraged, but intend to "pick our flint and try it again." All our misfortunes in the business last year were attributable to the extremely dry season. Four-fifths of the bees in this county were lost during 1887. Dr. B. W. Ford.

Middletown, Mo., Mar. 6, 1888.

BEES WINTERING POORLY.

Bees are wintering very poorly in this locality. Many have lost all, while others have lost from 60 to 75 per cent. Late feeding seems to be the cause, as those few who fed early are having their bees winter well. B. F. Hoover.

Penrose, Ill., Mar. 26, 1888.

THE LATE BLIZZARD IN THE EAST.

The blizzard of the 12th, 13th, and 14th inst. has very unfavorably affected the prospects of bee-keepers of all the Middle Atlantic States. The cold itself would not have been so disastrous; but accompanied by a very high wind, the interior of the hives has been so chilled that not a single bit of brood has survived; and young bees, which are so important at this season, can not be expected before the middle of April. This means the loss of many colonies by spring dwindling; i. e., the dying of old bees. The best of chaff hives have not been sufficient, for in them, too, all brood is lost. Had this storm not occurred, young bees would now be hatching daily. S. W. Morrison, M. D.

Oxford, Pa., Mar. 20, 1888.

THE WAY OF A BEE-KEEPER IS HARD.

I have finished looking through the bees. I found those alive in good condition except 3. But 18 are dead out of 45, the highest loss I ever had. Last fall I had 45 colonies in as good shape for winter as I could wish, except feed; but the result makes me blue. Truly the way of a bee-keeper is hard. Here are the minutes of my book:

No fall honey; plenty of heart's-ease.

Bought 650 lbs. granulated sugar, Oct. 6th; brood was so heavy I could not feed before. Oct. 14. Too cool to feed well; syrup was 3 lbs. water to 10 of sugar; 1 teaspoonful of tartaric acid. Boiled.

Oct. 22. Finished feeding.

Nov. 6. Bees could fly for a week past.

Dec. 18. Warm till now.

Jan. 30. 90°; bees got a good fly 3 days.

Feb. 22. Bees out several days.

The coldest weather was 36° below.

Some very sudden changes—60° in 2 hours.

I use chaff-packed hives. Snow was a detriment to those on the ground.

I should like to ask why the loss was so severe.

J. C. Stewart.

Hopkins, Nodaway Co., Mo., March 17, 1888.

Friend S., we do not quite see how heavy brood-rearing could prevent you from feeding earlier. Do you mean that the combs were so filled with brood there was no room for the feed to be stored?

TOBACCO COLUMN.

CONDITIONS UNDER WHICH WE GIVE SMOKERS TO PERSONS WHO STOP USING TOBACCO.

First, the candidate must be one of those who have given up tobacco in consequence of what he has seen and read in this department. Second, he promises to pay for the smoker should he ever resume the use of tobacco in any form, after receiving the smoker. Third, he must be a subscriber to Gleanings. Any subscriber may, however, have smokers sent to neighbors or personal acquaintances whom he has labored with on the matter of tobacco-using, providing he give us his pledge that, if the one who receives the smoker ever uses tobacco again, he (the subscriber) will pay for the smoker. The one who receives the smoker in this case need not be a subscriber to Gleanings, though we greatly prefer that he be one, because we think he would be strengthened by reading the testimonials from time to time in regard to this matter. The full name and address of every one who makes the promise must be furnished for publication.

GIVING SMOKERS TO THOSE WHO ARE NOT SUBSCRIBERS.

MR. A. I. ROOT:—I did not receive the smoker, nor did I much expect it. I can see through it plainly, how you can afford to give smokers free to those who quit the use of tobacco. You charge about twice too much for the journal, and the other 50 cts. will pay for the smoker, which the other poor subscribers will have to help pay for. F. A. Krame.

Sand Creek, Wis., April 6, 1888.

Friend K., just as soon as we decided we could afford to give smokers only to those who stopped using tobacco in consequence of what has appeared in Gleanings in regard to the matter, I saw the point you make; viz., that a good many might claim there was no disinterested desire to have people give up tobacco at all, but that it was only speculation in the way of offering a smoker as a premium to every one who would subscribe for Gleanings. You are mistaken in saying, however, we charge about twice too much for Gleanings. With the money we invest in it, it could not be furnished at 50 cts.; that is, *we* could not furnish it. Now, suppose we give a smoker to every one who gives up tobacco, whether he is a subscriber or not. If he is not a subscriber to Gleanings, how will his friends know about the pledge he has made to abstain from tobacco? In fact, how will he know it himself, if his promise is printed in a journal he does not subscribe for? The result would be, that anybody who gave up tobacco ten years ago might demand a smoker, and who could hold them to their promise, if the promise was printed in black and white in some publication they or their friends did not take? There is a way, however, that you can get the smoker without being obliged to subscribe for Gleanings. Get some bee-man near you who is a subscriber, who is acquainted with you, to say he will guarantee the pay for the smoker in case you ever use tobacco again, and we will send it right along, and you need not subscribe for Gleanings, nor read it either, unless you choose. You surely would not ask us to send out smokers by the wholesale to everybody, and everywhere, thousands of miles away, without some sort of guarantee or recommendation from some good man, would you, friend K.? You see, it behooves us to adhere to plain business principles, even if we *are* trying to serve the Lord. Now, come, old friend; will you not own up that we are right about it? and that there is nothing unfair in our wishing the one who receives a smoker, to be a subscriber to GLEANINGS?

GLEANINGS IN BEE CULTURE.

Published Semi-Monthly.

A. I. ROOT,
EDITOR AND PUBLISHER,
MEDINA, OHIO.

TERMS: $1.00 PER YEAR, POSTPAID.

For Clubbing Rates, See First Page of Reading Matter.

MEDINA, APR. 15, 1888.

In the world ye shall have tribulation; but be of good cheer: I have overcome the world.—JOHN 16: 33.

NOTICE the present issue is enlarged to 52 pages—16 more than the usual number.

UNTESTED QUEENS FROM FLORIDA.

THE first installment has been received and shipped. They came in excellent order. We expect now to have them on our table for prompt mailing as fast as they may be called for.

T. B. TERRY'S WRITINGS.

A SUBSCRIBER wishes to know what paper friend Terry writes for besides GLEANINGS. He used to write regularly for the *Ohio Farmer*, and also for the *Country Gentleman;* but we are sorry to see of late that it is only now and then they have an article from him. He has also written some recently for the *Rural New-Yorker*.

THE IMPROVEMENT IN ROLLING FOUNDATION.

IN our remarks in regard to this device (see page 146, Feb. 15) we omit to mention that the wooden roller is not used or needed on the six-inch mills, for they are used only for making strips for section boxes, and nothing of the kind is needed unless we make large sheets. Will those who have purchased six-inch mills take notice?

REPORTING TO MR. NEWMAN.

WE are just in receipt of a letter from Mr. Newman, to the effect that only a few have responded to the call of Prof. Cook, on page 206, for reporters on honey statistics. Mr. Newman suggests, as a partial cause for this, that his address was omitted. To those who may have been deterred from offering their assistance in the matter for the reason just given, we will say that Mr. Newman's address is 925 West Madison St., Chicago, Ill. Editor Newman, of the *A. B. J.*, is so well and favorably known, that no doubt Prof. Cook didn't think it was necessary to append his address.

BLACK AND HYBRID QUEENS.

PLEASE do not send us any orders for the above. There are no black or hybrid queens in our vicinity, and it does not pay us to raise them. By consulting the department of each number of GLEANINGS, headed as above, you will find who has them for sale. We have given prices for them in our price list, it is true; but we do it only to indicate what we think a fair value for them where parties happen to have them to dispose of. In localities where black bees predominate there will sometimes be more or less blacks or hybrids to be disposed of. Our locality is not at present one of that class. Reliable parties having blacks or hybrids to dispose of at the prices we quote them can have them noticed free of charge.

THE STATE OF OHIO FORBIDS THE SALE OF CIGARETTES AND TOBACCO TO MINORS UNDER 16.

WE clip the following from the Cleveland *News and Herald* of Friday, April 6:

> HALEY'S CIGARETTE BILL A LAW.
>
> The Senate this afternoon passed Mr. Haley's House bill prohibiting the sale of cigarettes and tobacco to minors under the age of sixteen. The bill makes such a sale, if knowingly made, punishable by a $25 fine.

The *Ohio Farmer* recently noticed the probable passage of this bill, and remarked that a similar bill in Illinois has been thoroughly enforced by the superintendents of the schools. Now, then, you teachers and superintendents of the schools of Ohio, as well all other good men and women, let us take hold of this law and see that it is speedily and thoroughly observed by every man and woman who sells tobacco.

MRS. COTTON AND HER BUSINESS.

THE *Apiculturist*, on page 93, takes me to task for saying that I believe Mrs. Cotton does all she agrees to. Perhaps in our notice of her circular we were not sufficiently explicit. We are well aware that Mrs. Cotton, in times past, did very badly; but I am sure she is doing much better of late; and although she charges fearful prices for the goods she offers for sale (as I have over and over again stated), so far as I know, at the present time she does send her customers what she agrees to send them. Friend Alley intimates that, even when she gets $20.00 for a colony of bees, she sends only a small nucleus, and oftentimes with only a queen-cell instead of a queen. She *used* to do this, I am aware; but does anybody *know* that she does not send out a good fair colony now? We should give the woman a chance if she is trying to do better, just exactly as we want God to give each and all of us a chance when *we* are trying to do better.

NOTICE TO HONEY STATISTICIANS FOR GLEANINGS.

ABOUT a month from date, in the issue for May 15, we hope to get out another installment of honey statistics; we trust, therefore, that our special reporters will, in the mean time, be taking observations. The list of questions will be very similar to those sent out last time, and will be forthcoming in a few days. Probably by the first of May, or a little later, all bee-keepers will be able to make an accurate statement as to how bees have wintered. We would strongly urge our subscribers to preserve especially the copies containing the statistical reports. A year from date it will be something of a matter of interest to place the reports of one year alongside of another, and compare notes. If it should be found practicable to continue these reports from year to year, we may be able to learn from the direction in which the straws blow, as observed from reports of previous years, how to make some sort of estimate of what may be expected during the season to follow, and so be better able to estimate the price honey should bring in the various localities.

CLOSED-END FRAMES.

THE *Bee-Keepers' Review* for March, 1888, is an excellent number; but the editor, in defending the use of closed-end frames, I think puts it a little too sanguine. In reviewing Cheshire's book, he says:

> It is evident that these gentlemen have yet to learn how to handle a Heddon frame.

And,—

> While the Heddon hive is especially adapted to handling hives instead of frames, we must pause to explain how its frames can be handled more rapidly and with less danger of crushing bees than with either of the above-mentioned styles of frames, or even the hanging frame.

Then the editor tells us how to handle these frames. Now, with all deference to the editor of the *Review*, I should say that *he* has not yet learned how to handle closed-end frames in localities where the bees cover every thing with propolis as they do here. With a hive that has had bees in only a few months, every thing works exactly as he describes, and frames can be put on the hive without killing a bee. We have one of the Heddon hives in our apiary, and I have used closed-end frames more or less for twenty years. The end-bars can be slid down by the side of the frame already in the hive very nicely until they are covered with propolis. In Medina County I have never known a season when there was not sufficient propolis, sooner or later, so that sliding one frame against another would rub propolis from top to bottom, and catch bees by the legs and wings, and mash them and glue them fast. Patent-right men with hives containing closed frames have tried to talk this kind of logic to us for twenty-five years past; but when they exhibit at our fairs they always get a clean hive, *free* from the accumulations of propolis of many seasons.

OUR OWN APIARY.

CONDUCTED BY ERNEST R. ROOT.

THE CONDITION OF OUR BEES UP TO DATE, APRIL 11; NO FOUL BROOD YET.

ONLY two colonies in chaff hives, up to date, have been lost out of our 240 all told, making the percentage of loss five-sixths of one per cent. The other colonies are in good condition, strong and healthy; with the present good prospects of weather, I hope I shall not be obliged to change the report numerically. Just a year ago, by looking at the records as given on page 320, for April 15, 1887, in this department, I find that foul brood had just made its appearance for the year. I am happy to state, at the present writing, that not a single trace of the disease has reappeared. It should be said, however, that, a year ago, brood-rearing, in consequence of the early spring, had progressed somewhat more than now.

THAT COLONY IN THE HEDDON HIVE.

Last fall we packed all our colonies in chaff, except one, and that was in the Heddon hive in only one section. I thought, when colder weather came on I would carry it into the cellar; but as the winter advanced I decided to let it stand out, to see how the colony would stand the winter weather, with its brood-chamber reduced to a capacity just sufficient to accommodate it. On or about Dec. 15, examination showed that the bees were quite badly affected with dysentery. In about a week or more, all were dead. I do not give this incident as any thing against the Heddon hive, for it proves nothing either way as far as the hive is concerned. Mr. Heddon does not recommend leaving these sectional hives on their summer stands during winter. I had thought, that, possibly, with a reduced brood-chamber, the colony might stand considerable cold; but in this case, at least, the protection was insufficient to prevent the too rapid consumption of their natural stores. the evident result of which was dysentery. All other colonies were amply protected with chaff packing, and were perfectly healthy. I said above, we lost two colonies. This was in chaff hives. If we include the loss in the Heddon, which was the result of an experiment, it will make three, or a percentage of 1¼ per cent.

THAT SMOKER WITH A LOOSE VALVE.

In confirmation of what I said in our last issue regarding the loose-working valve of the Clark, the following card from one of our correspondents was received. It is as follows:

> *Friend Ernest:*—The improvements that you have made in the smokers is a change for the better. Mine got so choked up that I could do nothing with it, so I took it to pieces and fixed the valve a little differently. When I put it together again it worked all right. Now, my improvement is, I bored a ½-inch hole behind the end of the spring, and covered it with a button. When I want to clean out the tube I open the hole, and have a crooked wire hot. Since I fixed mine I have no trouble. Try one, if you have never done so before, and see how nice it works.
> W. W. HUNTER.
>
> Davenport, Ia., Apr. 4, 1888.

Thanks, friend H. I am sure that the loose-working valve is a decided improvement, as any one will see by trying the smoker. I omitted to mention, in the last issue, that, when using the smoker—that is, when directing a blast of smoke upon the bees—it should be held in such a way that the valve side is downward. On the other hand, if the bellows be worked, fire-box downward, the valve drops, and does not immediately respond to the compression of the bellows.

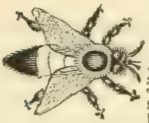
I have thought several times that, with the old tube, the best means of gaining access to it for the purpose of cleaning was by a small hole bored directly opposite the breech end. When not in use, this hole should be plugged, as you describe. The difficulty in the way was, that it would increase the expense of the smoker, and we came to the conclusion that the large blast-tube would render frequent cleaning unnecessary, and hence unnecessary a special provision for gaining access to the blast-tube at the back end.

NEARLY THIRTY TONS
—OF—
DADANT'S FOUNDATION
SOLD IN 1887.

It is kept for sale by Messrs. T. G. Newman & Son, Chicago, Ill.; C. F. Muth, Cincinnati, O.; Jas. Heddon, Dowagiac, Mich.; F. L. Dougherty, Indianapolis, Ind.; B. J. Miller & Co., Nappanee, Ind.; E. S. Armstrong, Jerseyville, Ill.; E. Kretchmer, Coburg, Iowa; P. L. Viallon, Bayou Goula, La., M. J. Dickason, Hiawatha, Kansas; J. W. Porter, Charlottesville, Albemarle Co., Va.; E. R. Newcomb, Pleasant Valley, Dutchess Co., N. Y.; D. A. Fuller, Cherry Valley, Ill.; J. B. Mason & Sons, Mechanic Falls, Maine; G. L. Tinker, New Philadelphia, O., Jos. Nysewander, Des Moines, Ia.; C. H. Green, Waukesha, Wis.; G. B. Lewis & Co., Watertown, Wis.; J. Mattoon, and W. J. Stratton, Atwater, O., Oliver Foster, Mt. Vernon, Iowa; C. Hertel, Freeburg, Ill.; Geo. E. Hilton, Fremont, Mich.; J. M. Clark & Co., 1409 15th St., Denver, Colo.; Goodell & Woodworth Mfg. Co., Rock Falls, Ill.; J. A. Roberts, Edgar, Neb., and numerous other dealers.

Write for *free* samples, and price list of bee supplies. We *guarantee every inch* of our foundation *equal to sample in every respect*. Every one who buys it is pleased with it.

CHAS. DADANT & SON,
3btfd **Hamilton, Hancock Co., Illinois.**



4 YOU BUY

your supplies for 1888, send for my 32-page illustrated Catalogue, describing my new reversible-frame hive and T super. They are perfection. Address **E. S. ARMSTRONG,**
5tfdb **JERSEYVILLE, ILLS.**

BEE-KEEPERS' SUPPLIES.
HIVES, FRAMES, CASES, SECTIONS,
COMB FOUNDATION, ETC.

Send your address for FREE CIRCULAR to
REYNOLDS BROS.,
5tfdb **Williamsburg, Ind.**

LOOK HERE! 20 fresh eggs in season, for only $1.00; also agent for thoroughbred Cattle, Swine, and Sheep, of fine pedigree, and Silver live-stock powder. Write for what you want. Orders filled in rotation. 5-8db

Fillmore Decker, New Florence, West'd Co., Pa.,
Breeder of Pure Brown Leghorn Fowls.

200 COLONIES of BEES FOR SALE
IN MOVABLE-FRAME HIVES.

Both Hofman and Moon frames. For particulars and prices, address **D. E. FLOYD,**
6-9db **Fort Plain, N. Y.**

WRITE TO JOHN CALLAM & CO.,
LUMBER DEALERS, KENTON, OHIO,
—FOR PRICES ON—
BEE-HIVES, SECTIONS,
And General Supplies for Bee-keepers
New Factory. Low Prices. Good Work.
3-14 db

WANTED **1000 CUSTOMERS** for Pure Italian bees & queens. Address, MARTIN & MACY,
6-11b No. Manchester, Indiana,
Or J. J. Martin & Co., Publishers of Rays of Light.

IMPORTED CARNIOLAN QUEENS.

I have 11 **FINEST SELECTED QUEENS,** bred by Mr. Benton in Carniola, August and September, 1887, now in my apiary, ready to ship as soon as weather will permit; never saw foul brood. One queen by mail, $8. Queen, with frame of brood and bees, by express, $10. You pay express charges. Safe arrival always guaranteed. Send for 1888 circular of home-raised stock. 8-10d
S. W. MORRISON, M. D., Oxford, Chester Co., Pa.

HERE I COME

To say that E. Baer, of Dixon, Ill., has sold out his supply business to the Goodell & Woodworth Mfg. Co., who will sell V-groove basswood sections at from $2.75 to $4.00 per M. Other supplies correspondingly low. Samples and circular free. Address the **GOODELL & WOODWORTH MFG. CO.,**
3tfdb **ROCK FALLS, WHITESIDE CO., ILL.**

New Orleans Apiary.

I will breed and mail guaranteed pure Italian queen-bees from the best stock for business, for one dollar each, the coming season. Orders solicited, and queens mailed upon the receipt of order. I will also sell 350 colonies of Italian bees in Langstroth hives, cheap, or any number of colonies to suit purchaser. I can ship by river, railroad, or steamship to any point. Address
6tfdb **J. W. WINDER, New Orleans, La.**

FOUNDATION, 10-lb. lots or more, 35 cts. per lb.
5tfdb **JAS. McNEIL, Hudson, N. Y.**

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Besides our beautiful eight-color chromo card, we have other neat designs, also a fine selection of fancy address cards, for old and young, for business and amusement. Also two and three letter monograms, all at low prices. **See Here,** 50 fancy printed cards, 15 cts.; 300 envelopes, 300 letter-heads, printed, $1. Package 25 assorted cards, 10 cts. Neat box of cards and honey candies, 15 cts. Circulars free. Address J. H. MARTIN, Hartford, N. Y.
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FREE! FREE! FREE!

Don't fail to send your address on a *postal card* for the March number of the **American Apiculturist.** 'Tis filled with essays on "PRACTICAL HINTS TO BEE-KEEPERS," from the pens of the best-known writers on apiculture. SENT FREE.
Address *APICULTURIST, Wenham, Mass.*
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BEAUTIFUL QUEENS FROM IMPORTED MOTHERS
TESTED, $2.00; UNTESTED, $1.00.
LIZZIE NYSEWANDER, NEW CARLISLE, CLARKE CO., OHIO.
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L. BRAHMAS, P. ROCKS, R. C. B. LEGHORNS, and PEKIN DUCKS; all strictly Pure-Bred. Eggs only $1.25 per setting; 2 settings, $2.00; safe arrival guaranteed. (Seven years' experience.)
6-8-10d *S. P. YODER, E. Lewistown, O.*

1888. 1888.
Pure Italian Bees and Queens

for sale in Full Colonies or Nuclei. Five L. frame nuclei a specialty. My queens and bees possess all the good qualities of the most desirable honey-bee. Send for prices. **WM. LITTLE,**
6tfdb **Marissa, Ill.**

HOLY-LAND QUEENS

A SPECIALTY.

Bees in Langstroth frames, or by the pound or nucleus, and bee-keepers' supplies.

GEO. D. RAUDENBUSH,
Office 445 Chestnut St. Reading, Pa.

LOOK AT THIS!

50 FULL COLONIES OF BEES FOR $5 PER Colony. Also bees by pound, queens, comb foundation, 300 smokers, honey-extractor, all at rock-bottom prices. Send for new price list of 1888, now out.

R. E. SMITH,
P. O. Box 72. Tilbury Centre, Can.
Formerly Smith & Jackson.

MISSOURI ✻ QUEENS

PER H. ALLEY, AND BEES,

Root smokers, Dadant foundation, Lewis sections, At A. I. Root's price list. Order early. Refer to Hopkins Bank.

8d **J. C. STEWART, Hopkins, Mo.**

100 Colonies of Italian bees in Simp. hives, for sale cheap. 6d A. F. BRIGHT, Mazeppa, Minn.

DADANT'S FOUNDATION FACTORY, WHOLESALE AND RETAIL. See advertisement in another column

THE BEE-KEEPERS'

REVIEW!

for March is devoted to "Planting for Honey." If undecided upon this subject, by all means read this number. The April number (which will be out in about two weeks) will take up the topic of "Securing Workers for the Harvest;" or perhaps it would be more proper to say: "Spring Management." R. L. Taylor, James Heddon, Dr. A. B. Mason, Dr. C. C. Miller, E. E. Hasty, F. P. Stiles, H. R. Boardman, J. H. Robertson, J. H. Martin, and Oliver Foster are among the contributors to these two issues. Besides this, there are several pages in each number devoted to extracts and to short, pointed editorials upon live, practical subjects. An exhaustive review of Mr. Cheshire's great work, "Bees and Bee-Keeping," is begun in the present issue. Price of the REVIEW, 50c a year. Samples free.

THE PRODUCTION OF COMB HONEY.

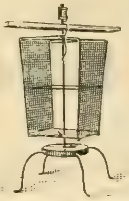
A neat little book of 45 pages; price 25 cts. The REVIEW and this book for 65 cts. Stamps taken, either U. S. or Canadian. Address

10tfdb **W. Z. HUTCHINSON,**
613 Wood St. **Flint, Mich.**

"FABLES AND ALLEGORIES."

Much to my surprise, we have sold, during the last year, over sixty of these beautiful and valuable books. Although at the time I considered the book well worth $2.00, I didn't suppose there were many who would want to pay that price for a book of that character. When we take into consideration, however, that it is not only about as handsome a book as can be found in our bookstores, externally and internally, but that is also a book in which godliness and purity shine forth from every page, it is perhaps not so very surprising. The book is not, in one sense, a religious book, for the principles are taught indirectly, in the form of a little story, or fable, and sometimes the reader does not see at once the application; but when it bursts upon him he feels a spirit of thankfulness for having been taught perhaps the very lesson he needs, by way of a sort of parable. The book contains 512 pages and 350 engravings. Many of the latter are some of the finest engravings that are to be found in modern print. The author of this work, Mr. Charles Foster, went to his heavenly rest during the past year; but it seems to me that his book will stand, much as the Pilgrim's Progress does, to help humanity through ages to come. Our new stock is even nicer than the last for they are in gilt binding; but the price will remain the same; viz., $2.00 each; two for $3.50, three for $1.65 each; five or more, $1.60 each. If wanted by mail, you will have to send 32 cts. extra, as the book is so very large and heavy. We can send it for five new names for GLEANINGS, you paying postage.

A. I. ROOT, Medina, O.



The Simplest Extractor Out.

Does perfect, good work, and lasts well. Is adjustable for barrels or cans, and saves express charges on cans.

Price Only $2.50.

Patented Feb. 9, 1888.
Address the inventor,

8-10db **J. C. MELCHER,**
O'Quinn, Fayette Co., Tex.

100 SWARMS ITALIAN BEES For Sale, on 8 L. frames, wired foundation; one-half are golden Italians. Will be shipped in Langstroth hive, or Langstroth Simplicity; purchaser has his choice. Five dollars per colony. Safe arrival guaranteed. Also a few hybrids at $4.50 per colony.

8d **J. R. REED,**
Milford, Jeff. Co., Wis.

Bees and Fixtures For Sale

Not having the time to attend to them, I offer for sale 25 colonies of Italian and hybrid bees, in the Simplicity chaff hive, with two sets of extracting frames, also 75 empty chaff hives (as good as new), one Novice extractor, lot of feeders, etc. Will sell all together or to suit the purchaser. Bear in mind I am determined to sell, and somebody will miss a bargain. The bees are in charge of G. W. Demaree, Christiansburg, Ky. Any inquiries addressed to him will receive prompt attention.

8d **R. W. KEENE, M. D., Versailles, Ky.**

By the use of NATURAL GAS

WE MANUFACTURE

BEE-HIVES, ONE AND FOUR PIECE SECTIONS, SMOKERS, FEEDERS, AND ALL NECESSARY APIARIAN SUPPLIES.

BEST GOODS AT LOW PRICES.

Send for list, to **J. J. BRADNER,**
8-9d **Findlay, Ohio.**

APIARY FOR SALE.

150 colonies, extractor, foundation-press, and other fixtures. For particulars and prices, address

8d T. W. LIVINGSTON, AINSWORTH, WASH. CO., IOWA.

BEES! BEES!

I will sell full colonies in eight-frame Langstroth hives, one to five, $5; over five, $4.50.

8-9d **H. C. GILSON, Burr Oak, Mich.**

Oliver Foster, of Iowa.

Italian bees, 60 cts. per lb. in July, to $1.00 in April. Pkgs. with queens, brood, etc., cheap. *No foul brood near.*

BEE SUPPLIES.—Best sections, cases, and hives. Catalogue free. Send 5 one-cent stamps for pamphlet, "HOW TO RAISE COMB HONEY,"—chuck full of practical information "in a nutshell."

4-15db Address OLIVER FOSTER, Mt. Vernon, Ia.

LITHOGRAPH LABELS

In 12 Colors, at $2.00 per 1000.

When Mr. James Abbott, of London, Eng., was with us a year ago, he had samples of a very neat lithograph label, oblong in shape, measuring $2\frac{1}{8}$x$2\frac{5}{8}$. We mentioned them at the time in GLEANINGS, agreeing to send samples as soon as we received them. Well, they have just come to hand, although we ordered 50,000 over a year ago. They are about the nicest labels we ever saw for glass tumblers, pails, and small packages of honey. We will mail a sample inclosed in our label catalogue, free on application, and will furnish them postpaid at the following prices: 5 cts. for 10; 40 cts. for 100; $1.25 for 500; $2.00 for 1000. A. I. ROOT, Medina, O.

2-STORY L. Hive, 80c

We still have a few of those 2-story L. hives with 10 brood-frames, for 80c each, in crates of 5 or more. Who will have them? Speak before it is too late.

SMITH & SMITH, 6tfdb **KENTON, OHIO.**

Eggs · for · Hatching.

P. Rocks, 1st pen, $1.00; 2d pen, 75 cts. Langshans $1.50 for sittings of 14 eggs. Warranted pure. Satisfaction given. MRS. C. E. HATCH,

Kentland, Newton Co., Ind.

IMPROVED EXCELSIOR INCUBATOR !

Simple, Perfect and Self-regulating.

IMPROVED EXCELSIOR INCUBAT
Lowest priced, first-class Hatcher made. Mention this paper.

Hundreds in successful operation. Guaranteed to hatch as large percentage of fertile eggs as any other hatcher, send 6c. for new Illustrated Catalogue.

Circulars Free.

GEO. H. STAHL,
Patentee and Sole Manufacturer,
QUINCY, ILLINOIS.

BE SURE

To send a postal card for our illustrated catalogue of **APIARIAN SUPPLIES** Before purchasing elsewhere. It contains illustrations and descriptions of every thing new and desirable in an apiary,

AT THE LOWEST PRICES.

ITALIAN QUEENS AND BEES.

J. C. SAYLES,
2 tfd **Hartford, Washington Co., Wis.**

DADANT'S FOUNDATION FACTORY, WHOLESALE AND RETAIL. See advertisement in another column. 3btfd

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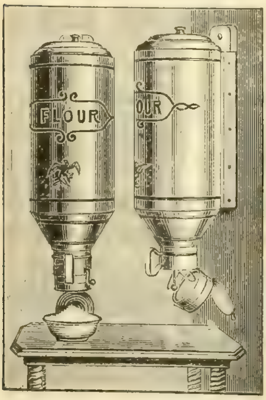
Tyler's Flour - Receptacle.

A Much-Needed Household Convenience.



This is the most convenient arrangement for flour that we have ever seen. It holds just a 49-lb. sack of flour. It is to be hung on the wall just above your table. When you want some flour simply place your pan under it, open the lid on the bottom and turn the crank and you get your flour already sifted. It is simple, neat, and effective, and not expensive either. Price $3.00 each, crated ready for shipment. A crate of 6 direct from factory, for $15.00.

A. I. ROOT, Medina, O.

LOOK HERE!

I will sell Italian queens from one of A. I. Root's imported queens. One untested queen, $1.00. Tested queen, $2.00. Select tested queen, $3.00. I also give a box of my pure vegetable liver pills free with each queen. Address

DR. L. L. LOOMIS,
6-17b Pemberville, Wood Co., O.

FREE! My catalogue of Bees, Queens, Apiarian Supplies, Standard Poultry (7 varieties), Japanese buckwheat, Green Mountain and Empire State potatoes. My stock is first-class. You should see my prices for 1888 before you order. CHAS. D. DUVALL,
5tfdb Spencerville, Mont. Co., Md.

ELLISON'S EARLY ITALIAN QUEENS

	April	May
1 untested queen - - - -	1 15	1 00
3 " " - - - -	3 00	2 50
1 tested " - - - -	2 50	2 00
3 " " - - - -	6 00	4 50

Many of the above will be reared in the height of the swarming season, and all will be nearly, if not quite as good as the best swarming queens. In every case satisfaction and safe arrival guaranteed. 6-9db

W. J. ELLISON, Stateburg, Sumter Co., S. C.

DON'T order supplies before sending for circular of HIVES, SECTIONS, T SUPERS, etc., to **R. L. CLEGG, Peoria, Union Co., Ohio.**

THE BRIGHTEST
FOUR-BAND GOLDEN ITALIAN QUEENS AND BEES

and reddest drones. For Working Qualities equal to any, and superior to many.

Price, select tested, one and two years old	$2 00
Tested	1 00

Queens reared this season that produce a majority of four-banded workers:

Best select tested	3 00
Tested	2 50
Untested in April and May	1 25
Untested in June and after	1 00

Send for circular to **L. L. HEARN,**
Frenchville, W. Va.

FOR SALE CHEAP.

The following articles: One section-box machine, one cutter-head for making the entrance to section-boxes, one mandrel with dovetailing saws, one planer, for planing hives and sections, one mandrel, two 10-in. saws, one 8 and one 9 in. saw, two 6-in. saws; one 6-in. dovetailing saw. Machinery as good as new. THOMAS GEDYE,

La Salle, La Salle Co., Ill.

HEADQUARTERS IN THE WEST FOR PURE ITALIAN

BEES and QUEENS.

Full colonies, from $5.00 to $9.00 each; 2-frame nucleus, untested queen, in May, $2.50; June, $2.25; after, $2.00; 3-frame, in May, $3.50; June, $3.00; after, $2.50. With TESTED queen, add 50c more. Bees, per lb., in May, 90 cts.; June, 75 cts.; after, 60 cts. Untested queens in May, $1.00; after, 75 cts.; six, $4.00. Tested, in May, $1.50; after, $1.25. Write for circular of Bees, Queens, Sections, Foundation, etc. 6-14db Address JNO. NEBEL & SON, High Hill, Mo.

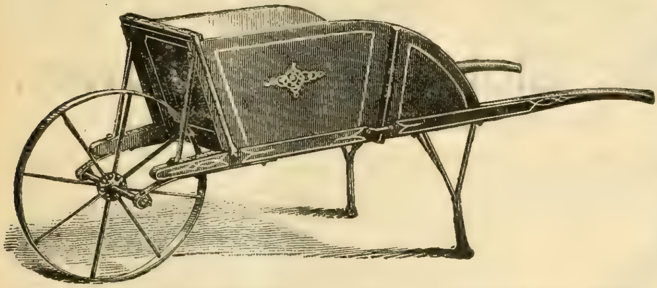
Cash for Beeswax!

Will pay 20c per lb. cash, or 23c in trade for any quantity of good, fair, average beeswax, delivered at our R. R. station. The same will be sold to those who wish to purchase, at 25c per lb., or 28c for *best selected wax*.

Unless you put your name *on the box*, and notify us by mail of amount sent, I can not hold myself responsible for mistakes. It will not pay as a general thing to send wax by *express*.

A. I. ROOT, Medina, Ohio.

OUR DAISY WHEELBARROW.



☐OUR 35-POUND WHEELBARROW, CAPABLE OF CARRYING 500 POUNDS.

Who has not felt the need of a **Light, Strong,** and **Durable** and at the same time **Cheap** wheelbarrow? The cut shows one that combines all these qualities better than any other we have ever seen. We have two sizes — the smaller one weighing only 35 lbs., and yet it will carry 500 lbs. safely, and it can be packed so closely together for shipment that you can take the whole thing under your arm and walk off easily. The wheel has flat spokes instead of round. The different pieces are all cut and forged by means of dies. The legs are steel, so they will neither break nor bend, even if you bump them on the sidewalk. The springs are oil-tempered, with adjustable bearings, so the wheel will always run free. More than all, the wheelbarrows are the nicest job of painting and varnishing, I believe, I ever saw, for a farm implement. They are handsome enough to go around town with, and strong enough to do heavy work; and yet the price of the small size is only $4.00. The larger size is $4.25. They can be sent either by freight or express. It is only five minutes' work to put one together. You can do a good work and make good wages introducing these wheelbarrows to your neighbors. Write for terms to

A. I. ROOT, Medina, Ohio.

APIARY FOR SALE.

I will sell my complete apiary and outfit at a very low price. Any one about to invest in bee-keeping will do well to address

PHILIP H. LUCAS,
Mount Vernon, West Chester Co., N. Y.

ITALIAN QUEENS

Untested, May, $1.25; June, $1.00; July, 90 cts. Send for 16-page ILLUSTRATED PRICE LIST of Bees, Queens, Chaff Hives, Barnes Foot-power Saws, Langdon Miter-Boxes, and Apiarian Supplies. Address

WILLIAM E. GOULD,
Fremont, Newaygo Co.,
7-9db **Michigan.**

DR. G. L. TINKER,

MANUFACTURER OF

Open-Side White-Poplar Sections,

the best-made sections ever offered to bee-keepers. The best-made perforated zinc. The best-made and only perfect wood and zinc honey-boards. Western agent for Crawford's Section Cartons. Sample section, zinc, and beautiful wood cards, 3 cts. Catalogue free. Address **DR. G. L. TINKER,**
7-10db **New Philadelphia, O.**

TRY Brown Leghorns. You will never keep any other breed. 6d A. F. BRIGHT, Mazeppa, Minn.

EVERY GOOD FARMER

WHO HAS USED

The Columbia Chilled Plow

Says it is the Lightest Draft, Easiest to Handle, Strongest and **Most Durable,** does **Better Work** in **all Soils;** in short, **the Best Plow in the Market. Don't fail** to try a **Columbia** before purchasing any other. Send for price list, testimonial, and calendar. If they are not sold in your vicinity send for **Special** introducing **Price.** Mention this paper.

6-9db **COLUMBIA PLOW WORKS,**
COLUMBIA CO. **Copake Iron Works, N. Y.**

DADANT'S FOUNDATION FACTORY, Wholesale and retail. See advertisement in another column 3btfd

---

G. B. LEWIS & CO.

WE make the best Bee-Hives, the best Sections, the best Shipping-Crates, the best Frames, &c.

☞We sell them at the Lowest Prices.

Write for free Illustrated Catalogue.

G. B. LEWIS & CO.,
1tfdb WATERTOWN, WIS.

HEADQUARTERS IN THE WEST

FOR THE MANUFACTURE AND SALE OF

Bee-Keepers' Supplies.

CHAFF AND SIMPLICITY HIVES FURNISHED AT A GREAT REDUCTION IN PRICE.

Nice Sections and Foundation, Specialties. A full line of Supplies always on hand. Write for our new Price List. Cash paid for Beeswax. 16tfdb

A. F. Stauffer, Sterling, Ill.

SMITH & SMITH.

WE HAVE ONE OF THE LARGEST

BEE-HIVE FACTORIES IN THE WORLD.

If you are interested in bees, send for our price list before *buying any supplies.*

GOOD GOODS AND FAIR PRICES.

SMITH & SMITH, (6tfdb) **KENTON, OHIO.**

Costs less than 2 cents per week.

THE CANADIAN BEE JOURNAL.

THE FIRST DOLLAR WEEKLY IN THE WORLD.

THE D. A. JONES CO., PUBLISHERS, BEETON, ONTARIO, CAN.

D. A. Jones is its editor, and this fact is a guarantee of its worth. It is thoroughly practical and contains weekly excellent articles from leading bee-keepers in the United States and Canada. Fifty-two numbers make a volume of 1040 pages. American currency and stamps at par. Samples free.

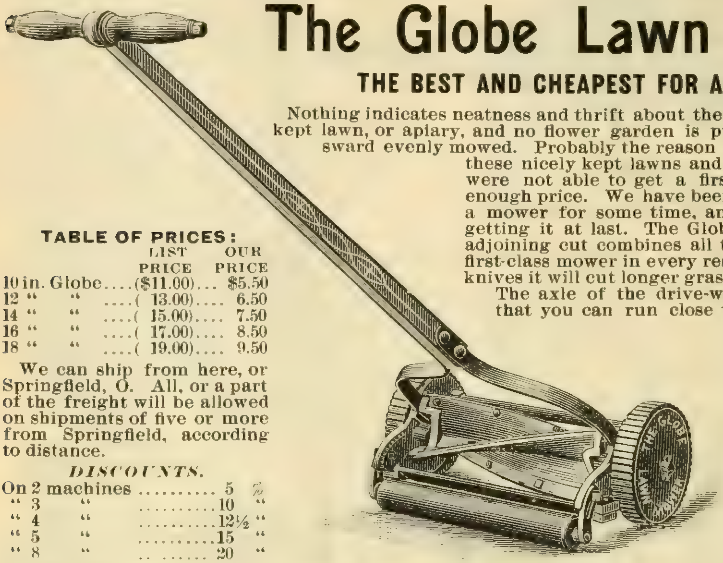
BEE SUPPLIES.

Wholesale and Retail.
Illustrated catalogue FREE to all.

We have the largest steam-power shops in the West, exclusively used to make EVERYTHING needed in the Apiary, of practical construction and at the LOWEST PRICES. Italian bees, queens, 12 styles of Hives; Sections, Honey-Extractors, Bee-Smokers, Feeders, Comb Foundation, and everything used by bee-keepers, always on hand. Address 3-11db **E. KRETCHMER, COBURG, MONTGOMERY CO., IOWA.**

The Globe Lawn-Mower.

THE BEST AND CHEAPEST FOR ALL TO BUY.



Nothing indicates neatness and thrift about the house so well as a nicely-kept lawn, or apiary, and no flower garden is prettier than a nice green sward evenly mowed. Probably the reason more people do not have these nicely kept lawns and apiaries is because they were not able to get a first-class mower at a low enough price. We have been on the lookout for such a mower for some time, and we have succeeded in getting it at last. The Globe lawn-mower shown in adjoining cut combines all the best features, and is a first-class mower in every respect. Having only three knives it will cut longer grass than those having four. The axle of the drive-wheel does not project, so that you can run close to the hive. It has two drive-wheels and roller, and the driving gears are simply perfect. Nothing could be more simple and effective. The prices are very much lower than on any other first-class mower, in fact they are about as low as the cheap grade of machines, and yet this mower is not surpassed by any machine on the market, but is guaranteed to be first-class.

TABLE OF PRICES:

	LIST PRICE	OUR PRICE
10 in. Globe	($11.00)	$5.50
12 " "	(13.00)	6.50
14 " "	(15.00)	7.50
16 " "	(17.00)	8.50
18 " "	(19.00)	9.50

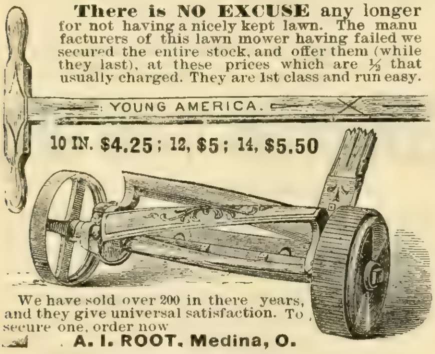
We can ship from here, or Springfield, O. All, or a part of the freight will be allowed on shipments of five or more from Springfield, according to distance.

DISCOUNTS.

On 2 machines	5 %
" 3 "	10 "
" 4 "	12½ "
" 5 "	15 "
" 8 "	20 "
" 10 or more,	25 "

A. I. ROOT, Medina, Ohio.

There is NO EXCUSE any longer for not having a nicely kept lawn. The manufacturers of this lawn mower having failed we secured the entire stock, and offer them (while they last), at these prices which are ½ that usually charged. They are 1st class and run easy.


YOUNG AMERICA.

10 IN. $4.25; 12, $5; 14, $5.50

We have sold over 200 in there years, and they give universal satisfaction. To secure one, order now

A. I. ROOT, Medina, O.

E. W. PITZER, HILLSDALE, IOWA,

Producer of and dealer in Italian Bees, comb and extracted Honey; also M. B. Turkeys, Toulouse Geese, Langshan, P. Rock, and White R. Comb Leghorn Chickens. Our breeding stock is first-class, and judiciously mated. Send for price list. 58db

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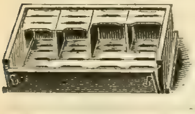

Eaton's Improved
SECTION CASE.
BEES AND QUEENS. Send for free catalogue. Address
FRANK A. EATON,
5-10db **Bluffton, Ohio.**

C. M. DIXON, PARRISH, FRANKLIN CO., ILL.

MANUFACTURER OF AND DEALER IN
APIARIAN SUPPLIES,
AND BREEDER OF
FANCY POULTRY.
5-8db Send for Price List.

CHENANGO VALLEY APIARY.

HEADQUARTERS IN N. Y. STATE.

If you want **NORTHERN QUEENS** reared from pure Italian stock, imported or golden queens, send me your order. The great popularity of my golden queens last summer has induced me to devote my apiary exclusively to bees and queens the coming season. Prices as follows:

Untested queens	May 1st	$1 00
Tested "	June 1st	1 50
Two-frame nuclei in June and July, with untested queen		2 00

Reference if desired. Send stamps for reply, to A. I. Root, or National Bank, Sherburn. Send for free circular. MRS. OLIVER COLE,
6tfdb Sherburne, Chenango Co., N. Y.

DADANT'S FOUNDATION FACTORY, WHOLESALE and RETAIL. See advertisement in another column. 3tfbd

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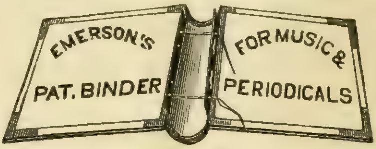


You can not look over the back No's of GLEANINGS or any other Periodical with satisfaction, unless they are in some kind of a Binder. Who has not said—"Dear me, what a bother—I *must* have last month's Journal and it is nowhere to be found?" Put each No. in the Emerson Binder as soon as it comes, and you can sit down happy, any time you wish to find anything you may have previously seen, even though it were months ago.

Binders for GLEANINGS (will hold them for one year), gilt lettered, for 60 cts.; by mail, 12 cts. extra. Ten, $5.00; 100, $45.00. Table of prices of Binders for any Periodical, mailed on application. Send in your orders. A. I. ROOT, Medina, Ohio.

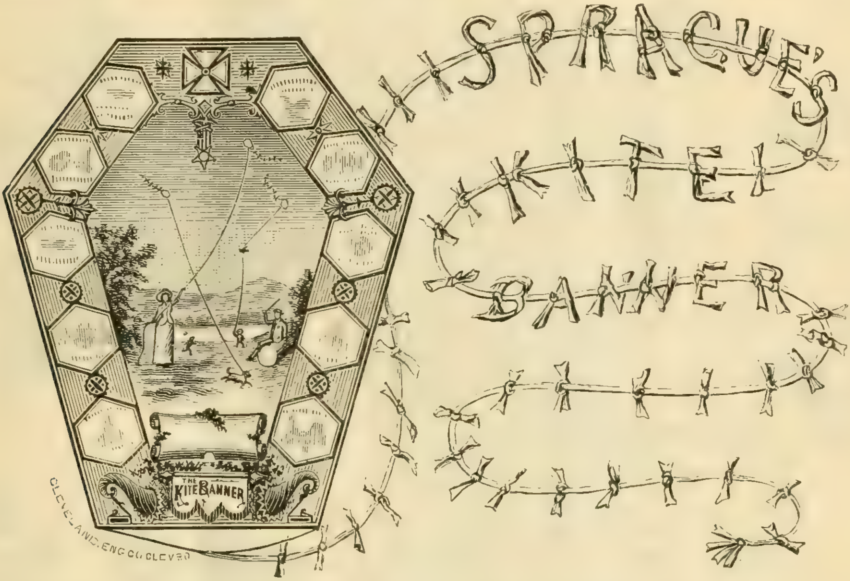
The Canadian P. O. authorities refuse to receive these through the mails, as they exceed the proper weight for merchandise.

SPECIAL OFFER!

We will send GLEANINGS IN BEE CULTURE from May 15, 1888, till Jan. 1st, 1889, to a New Subscriber

7½ MONTHS FOR 55 CENTS;

Or to every boy or girl who will send us one NEW subscriber for 7½ months with 55 cents, and 6 cts. to pay postage, we will mail free one of these beautiful kites.



This is just the time of year when every boy and girl wants a kite, and I'm sure you can't get one easier than to go to your neighbor who keeps bees and doesn't take a bee-journal. Show him a copy of GLEANINGS, and tell him that, by subscribing now, he can get the paper for the rest of the year for only 55 cts. If you don't succeed, you can get the kite just the same by sending 10 cts. and 6 cts. extra to pay postage.

A. I. ROOT, Medina, Ohio.

I ARISE to say to the readers of GLEANINGS that **DOOLITTLE** has concluded to sell **QUEENS** in their season, during 1888, at the following prices:

One untested queen....	1 00
Three untested queens	2 00
One untested queen reared by natural swarming..............	1 50
Three ditto............	3 00
One tested queen......	2 00
Three tested queens...	4 00
One tested queen by natural swm'g.........	3 00
Three ditto.............	6 00
Tested queens, 1887 rearing, each............	4 00
Extra, selected for breeding, two years old......	10 00

Two-frame nucleus with any queen for $2.00 extra.

Circular free, giving full particulars regarding each class of queens. Address

G. M. DOOLITTLE,
5-13d Borodino, Onondaga Co., N. Y.

BEES AND QUEENS.

One pound, with a tested Italian queen, in May, $2.25; in June, $2.00. Tested queens, raised from imported mothers, $1.50 each; in June, $1.25. All kinds of bee-keepers' supplies furnished.

T. A. GUNN, Tullahoma, Tenn.

NEW AND SECOND-HAND FOUNDATION-MILLS AT REDUCED RATES.

We have on hand the following fdn. mills that we desire to dispose of; and to do so we quote these special prices: One 14-inch mill, made about 2 years ago, but has never been used. This mill makes fdn. with the round, or improved cell. It is as good a mill as we could make a year ago; but with our new machine for cutting the rolls we do much better work now, hence we offer this mill at the very low figure of $25.00. Regular price $40.00.

One 10-inch mill, made about 3 years ago; has been used almost none; it is at Church Creek, Md. Regular price, $20.00. Will sell for $15.00.

A. I. ROOT, Medina, O.

MUTH'S HONEY-EXTRACTOR,

SQUARE GLASS HONEY-JARS,
TIN BUCKETS, BEE-HIVES,
HONEY-SECTIONS, &c., &c.
PERFECTION COLD-BLAST SMOKERS.

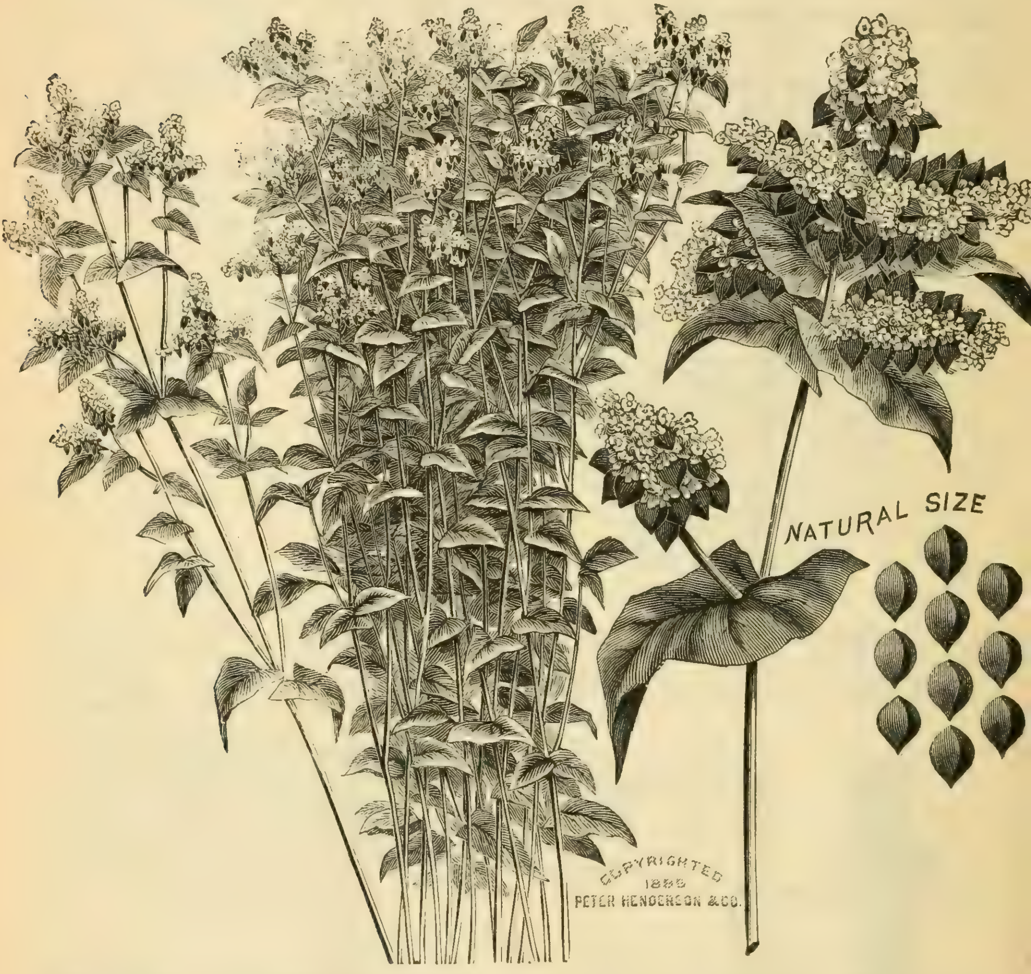
Apply to CHAS. F. MUTH & SON,
CINCINNATI, O.

P. S.—Send 10-cent stamp for "Practical Hints to Bee-Keepers." 1tfdb

CHOICE SEED

—OF THE—

NEW JAPANESE BUCKWHEAT.



Per lb., 12c; ½ peck, 60c; 1 peck, $1.00; ½ bush., $1.90; 1 bushel, $3.50; 5 bushels or more, $3.00 per bushel.

Here is what a few men did with this variety last year:

C. M. Underwood, Otego, N. Y., raised 11 bushels from 6 lbs. of seed. Jos. Griffin, Rio, Va., raised 3½ bushels from 2 lbs. of seed. F. W. Dean, New Milford, Pa., raised 8½ bushels from 3 lbs. of seed. J. C. Gallup, Smithport, Pa., raised 10 bushels from 6 lbs. of seed. R. B. Fletcher, McClure, N. Y., raised 9½ bushels from 5 lbs. of seed.

These yields are not so remarkable till you consider the very dry season and unfavorable circumstances under which they were produced. The testimony was, that, as compared with other varieties, it yielded from 2 to 5 times as much seed, and seemed to produce more honey.

M. J. Bundy, Angola, N. Y., a miller, called his farmer cousin's attention to the matter last season, and he, thinking that, if a little were good, concluded that more would be better. He therefore bought and sowed TWO BUSHELS, July 6, "and during the drought it looked as though it would not be worth cutting; but after the fall rains it came on in a hurry." He harvested 140 BUSHELS of choice seed.

Mr. Axtell, Roseville, Ill., "believes it will do better in this climate than any other buckwheat he ever sowed, and he has had an experience of over 25 years." I am not aware that any of the above men got less than $2.00 per bushel for their seed, and most of them got much more than that.

Send in your orders early, before our stock of 80 bushels is exhausted.

A. I. ROOT, Medina, Ohio.

FREE! FREE! FREE!

Upon application. Our 28th Annual Price List. A full line of

BEE-KEEPERS' SUPPLIES.

CHOICE COMB FOUNDATION AND WHITE-POPLAR SECTIONS A SPECIALTY.

100 COLONIES OF CHOICE ITALIAN BEES

for sale cheap. Also NUCLEUS COLONIES and QUEENS. Orders booked now. Address

WM. W. CARY & CO.,
3tfdb **Colerain, Franklin Co., Mass.**
Successors to WM. W. CARY. (Please mention GLEANINGS.)

Green Wire Cloth,

FOR

Window Screens and Shipping Bees,

AT

GREATLY REDUCED PRICES.

The following lot of wire cloth is a job lot of remnants, and full rolls direct from the factory, that are **FIRST QUALITY**, and the pieces are of such variety of size as to furnish any thing you want. Price 1¾ cts. per sq. foot, for full pieces. If we have to cut the size you want, 2 cts. per sq. ft.

When you order a piece, and somebody else has got it ahead of you, we will substitute a piece the nearest in size to the one ordered, unless you specify in your order that you do not want us to substitute. The figures on the left indicate the width.

8	10 rolls, 67 sq. ft. each: 1 each of 66, 65, 64, 63, 63, 62, 54, 40, 27, 24, 22, and 4 sq. ft.
12	34 rolls of 100 sq. ft. each; 3 of 102 sq. ft.; 3 of 98, and 1 each of 97, 92, 75, 52, 48, 44, 43, and 28 sq. ft.
14	1 roll 14 sq. ft.
16	8 rolls of 133 sq. ft.; and 1 each of 132, 130, 130, and 128 sq. ft.
18	6 rolls of 147 sq. ft., and 1 roll each of 153, 150, 148, 145, 145, and 69 sq. ft.
22	1 roll each of 55, 55, and 16 sq. ft.
24	22 rolls of 200 sq. ft. each, and 1 each of 280, 50, and 8 sq. ft.
26	95 rolls of 216 sq. ft. each, and 1 each of 215, 210, and 204 sq. ft.
28	47 rolls of 233; 3 of 224; 1 of 257, 234, and 219 sq. ft.
30	1 roll each of 250, 250, 125, 125, and 105 sq. ft.
34	17 rolls, 283 sq. ft. each; 1 each of 142, 142, 133, 130, and 9 sq. ft.
36	5 rolls, 300 sq. ft. each; 1 each of 195, 150, 150, 150, and 120 sq. f.
38	21 rolls, 316 sq. ft.; 1 each of 633 and 300 sq. ft.
	1 roll, 42 inches, of 350 sq. ft.; 2 of 44 in., 366 sq. ft.; 1 of 46 in., 121 sq. feet.
	THE FOLLOWING CLOTH IS BLACK.
40	5 rolls, 333 sq. ft. each, and 1 of 317 sq. ft.
42	9 rolls, 350 sq. ft. each.

A. I. ROOT, Medina, O.

JOB LOT OF POULTRY-NETTING.

Small Pieces at same Rate as full Rolls — ⅞ ct. per Square Foot.

Two or more pieces, 5 per cent off; ten or more, 10 per cent discount.

You will notice in this lot some with heavier wire than No. 19, and some with smaller mesh than two-inch. Both of these are worth more at regular prices than two-inch No. 19; but as it is a job lot we put it all in at the same price.

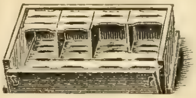
Inches wide.	Inch mesh.	No. of Wire.	By dividing the number of square feet in this column by the width in the first column, you can ascertain the length of each piece. These figures give the number of square feet in each piece.
24	2	19	170, 140, 130, 56, 32; No. 18, 226.
30	2	19	167, 125, 125, 95, No. 18, 150.
36	1½	18	294.
60	2	19	495, 445, 335, 330, 325, 285, 280, 240, 220, 180, 165, 160, 140, 80.
60	2	18	410, No. 17 wire, 195.
72	1½	18	228.
72	2	19	750, 720, 672, 636, 618, 558, 510, 438, 270, 252, 222, 168, 168, 162, 162, 156, 156, 156, 48.

We know of nothing nicer or better for a trellis for creeping vines than the above netting. The 12 to 24 inch is just the thing to train up green peas, fastening the netting to stakes by means of staples. If the stakes are set in substantially, one each 12 or 15 feet will answer. When the peas are stripped off the stakes, netting and all can be rolled up and laid away until another season. A. I. ROOT, MEDINA, O.

ITALIAN QUEENS

Untested, May, $1.25; June, $1.00; July, 90 cts. Send for 16-page ILLUSTRATED PRICE LIST of Bees, Queens, Chaff Hives, Barnes Foot-power Saws, Langdon Miter-Boxes, and Apiarian Supplies. Address

WILLIAM E. GOULD,
Fremont, Newaygo Co.,
7-9db **Michigan.**



Eaton's Improved
SECTION CASE.
BEES AND QUEENS. Send for free catalogue. Address
FRANK A. EATON,
5-10db **Bluffton, Ohio.**

DR. G. L. TINKER,
MANUFACTURER OF

Open-Side White-Poplar Sections,

the best-made sections ever offered to bee-keepers. The best-made perforated zinc. The best-made and only perfect wood and zinc honey-boards. Western agent for Crawford's Section Cartons. Sample section, zinc, and beautiful wood cards, 3 cts. Catalogue free. Address **DR. G. L. TINKER,**
7-10db **New Philadelphia, O.**

EVERY GOOD FARMER

WHO HAS USED

The Columbia Chilled Plow

Says it is the Lightest Draft, Easiest to Handle, Strongest and **Most Durable,** does **Better Work** in **all Soils;** in short, **the Best Plow in the Market. Don't fail** to try a **Columbia** before purchasing any other. Send for price list, testimonial, and calendar. If they are not sold in your vicinity send for **Special** introducing **Price.** Mention this paper.

6-9db **COLUMBIA PLOW WORKS,**
COLUMBIA CO. **Copake Iron Works, N. Y.**

ITALIAN BEES AND QUEENS.

1 untested queen $1.00; three for $2.00. Bees by the pound and nucleus. Send for price list.

H. G. FRAME,
5-15-d **North Manchester, Ind.**

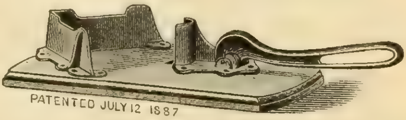
DO YOU KNOW

that I am headquarters for **Queen Mothers,** and full Colonies? 12 years in originating a superior strain of Italian Bees. If you mean business, I will cheerfully respond. Price list free.

F. BOOMHOWER,
5tfd **Gallupville, N. Y.**

IF YOU HAVE LOST ALL YOUR BEES, you had better send a postal card for my prices for the coming season. 8tfdb THOMAS GEDYE, LaSalle, Ill.

A MACHINE FOR PUTTING TOGETHER ONE-PIECE SECTIONS.



IT WILL PAY FOR ITSELF IN ONE DAY'S USE.

No bee-keeper can afford to be without one. Send to your supply-dealer, or to Wakeman & Crocker, manufacturers. Price $2.50. Lockport, N. Y. Correspondence with supply-dealers solicited.

THE BEE-KEEPERS' REVIEW.

If ever a bee-paper was started with a place ready and waiting for it, the REVIEW has had that luck. The first number was welcomed before it was read, and when it was read it took its place easily and at once among the things that justify their own existence, and need no probation before being fully and finally accepted. It is an imitation of none of its contemporaries, and it is on a level with the best of them, both in the merit of its general scheme and in its typographical neatness. This, we believe, will be the verdict of the intelligent bee-keeping public, and, as proof of the correctness of this belief, we append the following, which we select from a large number of similar congratulations:

I am greatly pleased with the *Review*, and think it very creditable. It must take the head with intelligent bee-keepers. R. L. TAYLOR.
Lapeer, Mich.

You have made an excellent start, and I am very favorably impressed with your plan of making each issue a "special number." E. M. HAYHURST.
Kansas City, Mo.

From a practical standpoint you are well qualified to make the venture a success. I hope you may do well financially, and establish an enviable reputation for editorial ability, as you have already as a writer on apicultural topics. EUGENE SECOR.
Forest City, Iowa.

Review No. 1 lies before me, and I must say it is like a chestnut, brimful of meat, properly cooked and served in first-class palatable order. Before reading it I thought: "What can friend Hutchinson say that has not already been said by others?" But you have given us a feast of fat things. If the *Review* keeps up to the standard of No. 1, it has a bright future before it. W. E. CLARK.
Oriskany, N. Y.

I like the *Review* in every respect. There is more in it than in any other bee-journal I have ever seen. That is, more real meat, or what is called meat, as I see it. The whole matter, including ads., is tastefully arranged. I can not conceive who would not instantly subscribe, at the price, after seeing a copy. JAMES HEDDON.
Dowagiac, Mich.

I congratulate you upon the excellence of the *Review*. It will be an honor to the craft and to our State, if you maintain it at the starting pitch, and I do not doubt but you will. At first I was sorry. What we want is fewer, better papers. But I forgot for the moment who was at the helm. I believe you will succeed, and if you do not go to the top you will stride well up. A. J. COOK.
Agricultural College, Mich.

Sample copy of the *Review* is at hand, and I was agreeably surprised, to say the least. As a rule, journals in starting furnish at first a sickly, discouraging appearance that stamps *failure* all over them. What a contrast in beholding the *Review!* Why, friend Hutchinson, the first glance at it shows its *success*. And then its contents—the very cream of advanced bee-literature. I read it through before laying it out of my hands. E. KRETCHMER.
Coburg, Iowa.

Four numbers of the *Review* have been issued. The Jan. number discusses "Disturbing Bees in Winter." The Feb. issue is devoted to "Temperature," as applied to bee-repositories; the March number takes up the subject of "Planting for Honey," while "Spring Management" is the special topic of the April issue. The special subject of the May *Review* will be, "Hiving Bees." Besides these special discussions, which are caried on by the best bee-keepers of the country, there are several pages in each issue devoted to short, sharp, concise editorials upon current apicultural topics. An exhaustive review of Mr. Cheshire's book, "Bees and Bee-keeping," Vol. II., is begun in the March *Review* and will be finished in the May number. If you wish for the cream of this great work, read these three numbers. Price of the *Review* is 50 cts. a year. Samples cheerfully sent upon application.

THE PRODUCTION OF COMB HONEY.

A neat little book of 45 pages; price 25 cts. The REVIEW and this book for 65 cts. Stamps taken, either U. S. or Canadian. Address
10tfdb **W. Z. HUTCHINSON,**
613 Wood St. **Flint, Mich.**

LOOK HERE!

I will sell Italian queens from one of A. I. Root's imported queens. One untested queen, $1.00. Tested queen, $2.00. Select tested queen, $3.00. I also give a box of my pure vegetable liver pills free with each queen. Address

DR. L. L. LOOMIS,
6-17b Pemberville, Wood Co., O.

ELLISON'S EARLY ITALIAN QUEENS

	April.	May.
1 untested queen	1 15	1 00
3 " "	3 00	2 50
1 tested "	2 50	2 00
3 " "	6 00	4 50

Many of the above will be reared in the height of the swarming season, and all will be nearly, if not quite as good as the best swarming queens. In every case satisfaction and safe arrival guaranteed. 6-9db
W. J. ELLISON, Stateburg, Sumter Co., S. C.

THE BRIGHTEST

FOUR-BAND GOLDEN ITALIAN QUEENS AND BEES

and reddest drones. For Working Qualities equal to any, and superior to many.

Price, select tested, one and two years old	$2 00
Tested	1 00

Queens reared this season that produce a majority of four-banded workers:

Best select tested	3 00
Tested	2 50
Untested in April and May	1 25
Untested in June and after	1 00

Send for circular to **L. L. HEARN,**
Frenchville, W. Va.

36-Inch Exhaust-fan Or Blower,

AT BERLIN, WIS., ONLY $25.00.

This is well worth $50.00, and a new one would cost upwards of $100. We must sell it at once, hence the above offer. It is used for drawing all shavings and sawdust away from your planer and saw-tables, and blowing them into the shaving-room. The one we offer above did the work for us for 8 years, and before it was shipped away was overhauled, rebabbitted, and put in excellent repair. There is an 8-inch pulley, each side of the fan, an inlet on each side, and one outlet. **A. I. ROOT, Medina, O.**

ARE you wanting Letter-heads, Note-heads, Envelope-corners, Business-cards, or Visiting-cards? Letter-heads, $2.00 per 1000; Envelope-corners, $2.00 per 1000. **ROBERT GEDYE,**
La Salle, Illinois.

DADANT'S FOUNDATION FACTORY, WHOLESALE AND RETAIL. See advertisement in another column

HEADQUARTERS IN THE WEST FOR PURE ITALIAN

BEES and QUEENS.

Full colonies, from $5.00 to $9.00 each; 2-frame nucleus, untested queen, in May, $2.50; June, $2.25; after, $2.00; 3-frame, in May, $3.50; June, $3.00; after, $2.50. With TESTED queen, add 50c more. Bees, per lb., in May, 90 cts.; June, 75 cts.; after, 60 cts. Untested queens in May, $1.00; after, 75 cts.; six, $4.00. Tested, in May, $1.50; after, $1.25. Write for circular of Bees, Queens, Sections, Foundation, etc. 6-14db Address JNO. NEBEL & SON, High Hill, Mo.

Cash for Beeswax!

Will pay 22c per lb. cash, or 25c in trade for any quantity of good, fair, average beeswax, delivered at our R. R. station. The same will be sold to those who wish to purchase, at 27c per lb., or 30c for *best selected wax*.

Unless you put your name *on the box*, and notify us by mail of amount sent, I can not hold myself responsible for mistakes. It will not pay as a general thing to send wax by *express*.

A. I. ROOT, Medina, Ohio.

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SPECIAL NOTICES.

BACK NUMBERS OF GLEANINGS WANTED.

Until further notice we will pay 10 cents each for the April 1st and April 15th issues of GLEANINGS for the year 1884. Be sure to bear in mind that it is 1884, and not 1888 or 1887.

"BEES AND BEE-KEEPING," BY CHESHIRE.

We have just received an importation of the second volume, a review of which you will find on another page. Vol. I. is "Scientific," and Vol. II. "Practical." Vol. I. contains 336 pages, and Vol. II. has 650 pages. Both have very many engravings, almost all of which are original. Price of Vol. I., $2.50; Vol. II., $3.00, or $5.25 for the two, postpaid.

OF INTEREST TO OUR CANADIAN READERS.

We have at Cheltenham, Ont., one of our latest improved 12-inch foundation-mills. Express charges and duty to get it there were $10,30, and the mill here is worth $30,00, being geared at both ends, and having also a back gear. We will sell it f. o. b. at Cheltenham for $35.00. We can mail you a small sample of the foundation made on it, if you wish to see before buying it.

12½-INCH CIGAR-BOX PLANER FOR $50.00.

We have at New London, Wis., a 12½-in. cigar-box planer, made specially for planing light stuff, ⅛ thick and above. It originally cost us $100, and was used for planing sections before we began to saw them smooth. Before it was shipped to Wisconsin it was babbitted and put in first-class running order, virtually as good as new. To make a quick sale, we offer it for $50. For the man who has a place for such a planer it is a bargain.

KIND WORDS FROM OUR CUSTOMERS.

THAT WHEELBARROW.

The wheelbarrow at hand in good shape, and it is a daisy. It is too nice to use, only on the streets.

CYRUS WILSON.

Fairmount, Ind., April 18. 1888.

I think your wheelbarrow is complete in every respect. It is a beauty.

J. B. SPELLMAN.

Pine Grove, Texas, April 17, 1888.

THE SMOKER A BETTER ARTICLE.

I received the goods in good order. They were better than I expected, especially the smoker, which was a better article, and, sent through the mail, it cost less money than it could be bought for here.

D. M. DORSEY.

Rainier, Ore., Mar. 23, 1888.

The extractor I bought of you, and other goods, I received. They are the best lot of goods that anybody around here ever saw. I am very much pleased with them.

MARSHALL SWAIN.

Edwards, N. Y., April 16, 1888.

SILENCE GIVES CONSENT.

I have been getting small lots of goods of you frequently for the last three years, and never told you whether they came all right or not, but they did every time, and always as good as represented, and some a great deal better than stated in your price list. I am one of the "silence gives consent" men; so if you don't hear from me in answer to an order for goods I get of you, it is always perfect.

B. B. MESSNER.

Comet, Summit Co., O., Feb. 27, 1888.

O The BUYERS' GUIDE is issued March and Sept., each year. It is an encyclopedia of useful information for all who purchase the luxuries or the necessities of life. We can clothe you and furnish you with all the necessary and unnecessary appliances to ride, walk, dance, sleep, eat, fish, hunt, work, go to church, or stay at home, and in various sizes, styles and quantities. Just figure out what is required to do all these things **COMFORTABLY**, and you can make a fair estimate of the value of the BUYERS' GUIDE, which will be sent upon receipt of 10 cents to pay postage,

MONTGOMERY WARD & CO.
111-114 Michigan Avenue, Chicago, Ill.

BEE-KEEPERS, TAKE NOTICE!

I shall move my bee-hive machinery to New London, Wis., and shall have a complete new factory, and shall be able to fill all orders by June first, 1888. **R. H. SCHMIDT.**

SEND FOR CIRCULAR

and Price List of the **SHAVING-SECTION SYSTEM.** Address WALTER HARMER,
No. 411 West Eighth St., Manistee, Mich.

LUTHER GRAY, Orlando, Fla., Italian Queens, tested, $1.00 each; untested, 75c. For nuclei, see GLEANINGS, Apr. 15th. 9tfdb

FOR SALE.—40-acre farm; 25 acres improved; good old orchard; lies level; 7 miles from Traverse City; good roads; good school in one mile; good fishing and hunting; 2 miles to Traverse Bay; watered by good well and cistern; frame house; log barn and wood-shop, and blacksmith-shop; good neighbors; close and well settled all around; also a good place for bees, and a good market for honey. Will sell place, stock, farm, tools, and bees cheap.

Address **O. W. JEFFERSON,**
ACME, GRAND TRAVERSE CO., MICH.

FOUNDATION. Good Work. Fresh Goods.
J. I. PARENT,
Charlton, Saratoga Co., N. Y.

200 POUNDS OF BEES

at $1.00 a pound. Italian queens $1.00 each. Circular free. **S. C. PERRY,**
Portland, Ionia Co., Mich.

ENGLISH RABBITS FOR SALE. Write for prices. 9d DANIEL M. PURDY, Killbuck, O.

EGGS for hatching from Langshans, B. and W. Leghorns, W. and penciled P. Rocks. **EXPRESS PREPAID** at $2 per sitting. Ref. A. I. Root. W. F. ASHLEY, Medina, O.

HONEY COLUMN.

CITY MARKETS.

ST. LOUIS.—*Honey.*—Our market is pretty well sold out of honey. The demand is only moderate. Prices range from 6@7½ according to quality and color. Our advices are from the South that a good yield may be expected this season. We look for a good healthy demand during the year. We will advise you in regard to prices and prospects as the season advances. D. G. TUTT GROCER CO.,
April 25. 206 N. Commercial St., St. Louis, Mo.

MILWAUKEE.—*Honey.* — Market is in a fair condition; and with the continued demand the stock will work off. We can now quote white choice 1-lb. sections, 16@17; 2-lb., 15@16; 3-lb., 14—not in favor. Dark or broken, not quotable. Extracted, in bbls. and kegs, white, 8@8½; pails and tin, 9½@10; bbls. and kegs, dark, 5@7. *Beeswax.*—Dull, 22@25.
A. V. BISHOP,
April 23. Milwaukee, Wis.

CINCINNATI.—*Honey.*—Demand for comb honey is slow; prices nominal. It brings 14@17 for the best, in a jobbing way. Extracted honey is in good demand, and brings 4@9 cts. per lb. on arrival. There is a good demand for *Beeswax*, which brings 20@22 per lb. on arrival for good to choice yellow.
CHAS. F. MUTH & SON,
April 23. Cincinnati, O.

ST. LOUIS. — *Honey.* — Saturday we received two bbls. of honey from Mississippi, which is said to be this year's honey. It sold at 6 cts. Our advices so far are for a good crop of Southern honey. As yet, we have no change to make in prices. But we think there will be some late in the season. *Beeswax.*—22@22½ for prime on arrival; 25 on order, in small way. W. B. WESTCOTT & CO.,
April 23. St. Louis, Mo.

DETROIT.—*Honey.*—Best white comb honey in 1-lb. sections, 15c, with few sales, and considerable in sight. A good many held their honey for better prices, and, in consequence, some honey will be carried over. Extracted, 9@10. *Beeswax*, 23@24.
Bell Branch, Mich., Apr. 24. M. H. HUNT.

NEW YORK.—*Honey.*—No demand for comb honey of any kind. Extracted in fair demand. *Beeswax* sells readily at from 25@27c.
F. G. STROHMEYER & CO.,
April 24. 122 Water St., N. Y.

CHICAGO.—*Honey.*—Market is very weak, and sales are being made where possible at 15@16c for best grades of comb. Extracted, quiet; offerings fair, with lower prices as a rule. *Beeswax*, 23@25.
R. A. BURNETT,
161 So. Water St., Chicago, Ill.

COLUMBUS.—*Honey.*—Market is very dull, ranging in price from 15@17c per lb. *Beeswax* about the same. No demand. EARLE CLICKENGER,
April 23. 119 E. Town St., Columbus, Ohio.

KANSAS CITY.—*Honey.*—Market is weak and lower; 1c per lb. off. Market very slow.
CLEMONS, CLOON & CO.,
April 23. Kansas City, Mo.

BOSTON.—*Honey.*—We quote: 1-lb. sections, white, 16@17; 2-lbs., 14@16. *Beeswax.*—25c. Sales slow.
BLAKE & RIPLEY,
April 23. 57 Chatham St., Boston, Mass.

CONVENTION NOTICES.

The next meeting of the N. W. Ill. & S. W. Wis. Bee-keepers' Association will be held in Rockton, May 22, 1888.
D. A. FULLER, Sec'y.

The Keystone Bee-keepers' Association will hold its sixth annual meeting in the Court-house in Scranton, Pa., on Tuesday, May 8th, at 10 o'clock A. M. All bee-keepers are invited.
ARTHUR A. DAVIS, Sec'y.

The next meeting of the Susquehanna County Bee-keepers' Association will be held at New Milford, on May 5th, 1888. Subjects for consideration at that time are as follows: 1. Bee-Keeping for Pleasure and Profit; 2. Spring Work with Bees; 3. Is it advisable to use Foundation? If so, to what Extent? 4. How can we make our Association of the most practical Use to its Members? We especially invite all bee-keepers who can to come and help make the meeting as interesting as possible.
H. M. SEELEY, Sec.

PRICE LISTS RECEIVED.

The following circulars and price lists were received since our last issue:

S. H. Stockman, East Auburn, Me., 20 pages, bees, queens, and apiarian supplies.

J. A. Foster, Tilbury Center, Ontario, Can., 8 pages relative to bees and honey.

Walter Harmer, Manistee, Mich., a leaflet relative to forms for making his shaving sections—see our previous issue.

R. L. Clegg, Peoria, O., 8 pages relative to sections and supplies in general.

M. J. Dickason, of Hiawatha, Kan., sends us a price list of 16 pages, hives and supplies.

Thomas Gedye, La Salle, Ill., a 4 page list of bees, hives, and supplies.

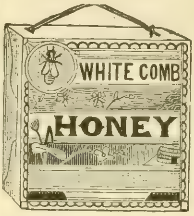
W. G. Russell, Millbrook, Ontario, a 14 page list of things pertaining to the apiary.

A. M. Gander, Adrian, Mich., sends us his 16 page list of apiarian supplies.

H. H. Brown, Light Street, Pa., sends an 18 page list of bees and supplies.

W. C. Gillett, Le Roy, N. Y., sends us a 4-page list of Italian queens and tin points.

PASTEBOARD BOXES
FOR ONE-POUND SECTIONS OF
COMB HONEY.



THIS box has a bit of "red tape" attached to it to carry it by. It makes a safe package for a single section of honey for the consumer to carry, or it can be packed in a trunk, if he wants. It can be opened in an instant. The price of the box is 2 cts. each, set up; in the flat, 15 cts. for 10; package of 25, 25 cts.; 75 cts. per 100; or $6.00 per 1000; 10,000, $55. If wanted by mail, add $1.00 per hundred for postage. Colored lithograph labels for putting on the sides, two kinds, one for each side, $3.00 per 1000. A package of 25, labeled on both sides, as above, 45 cts. By mail, 30 cts. more. They can be sold, labeled on one side or both sides, of course. We have only one size in stock, for Simplicity sections. Sample by mail, with a label on each side, 5 cts. If you want them shipped in the flat, labels already pasted on, the price will be ten cents per hundred for putting them on.

Your name and address, and the kind of honey, may be printed on these labels, the same as other labels. The charge for so doing will be 30 cts. per 100; 250, 50 cts.; 500, 75 cts.; 1000, $1.00.

A. I. ROOT, Medina, Ohio.

CHENANGO VALLEY APIARY.
HEADQUARTERS IN N. Y. STATE.

If you want **NORTHERN QUEENS** reared from pure Italian stock, imported or golden queens, send me your order. The great popularity of my golden queens last summer has induced me to devote my apiary exclusively to bees and queens the coming season. Prices as follows:

Untested queens May 1st - - - - -	$1 00
Tested " June 1st - - - - -	1 50
Two-frame nuclei in June and July, with untested queen - - - - - - - -	2 00

Reference if desired. Send stamps for reply, to A. I. Root, or National Bank, Sherburn. Send for free circular. MRS. OLIVER COLE,
6tfdb Sherburne, Chenango Co., N. Y.

1888. **Italian Queens.** 1888.

Select tested ones in May, $2.50; June, $2.00; after, $1.50. Queens warranted purely mated, $1.00; 6 for $5.00. For further particulars see GLEANINGS, April 1st, page 271.

J. T. WILSON,
Nicholasville, Jess. Co., Ky.

GLEANINGS IN BEE CULTURE.

DEVOTED TO BEES, HONEY & HOME INTERESTS.

Vol. XVI. **MAY 1, 1888.** **No. 9.**

TERMS: $1.00 PER ANNUM, IN ADVANCE; 2 Copies for $1.90; 3 for $2.75; 5 for $4.00; 10 or more, 75 cts. each. Single number, 5 cts. Additions to clubs may be made at club rates. Above are all to be sent to ONE POSTOFFICE.

Established in 1873.
PUBLISHED SEMI-MONTHLY BY
A. I. ROOT, MEDINA, OHIO.

Clubs to different postoffices, NOT LESS than 90 cts. each. Sent postpaid, in the U. S. and Canadas. To all other countries of the Universal Postal Union, 18 cts. per year extra. To all countries NOT of the U. P. U., 42 cts. per year extra.

FRIEND CHRISTIE'S FACTORY FOR CANNING HONEY.

SOME VALUABLE HINTS IN PUTTING IT UP SO IT WILL KEEP LIQUID INDEFINITELY.

FRIEND ROOT:—Reaching home a few days ago for the first time since early in December last, my attention is called to an article in Jan. 15th GLEANINGS, copied from the Smithland *Exponent*, referring to my mode of canning my honey for the market. You inquire whether I succeed in putting up the honey in such a manner "that it remains liquid year in and year out." I think I can answer affirmatively. It is true, I sometimes find a can that is candied when opened; but I believe these instances are evidence only of the fact that carelessness was used in putting it up. It has either been heated not quite hot enough, or has been allowed to cool off before sealing, or possibly some slight defect in the sealing, so as to render the can not absolutely air-tight. Very few cans, though, are found candied on opening.

In my price list I make this very claim for my honey: "The honey is all heated by *steam* to expel the air in it, then sealed *air-tight while hot.* Put up thus, it retains its liquid condition until the cans are opened and the air again admitted. Now, you will observe that I do not "seal the honey up and then heat it to the proper temperature," as you seem to understand, but I first heat to proper temperature and *then* seal up.

What is the proper temperature? I can not answer accurately, as I have never used an absolute test, but I heat to that point where the cans can barely be handled by the naked hand in lifting from the fillers' to the tinners' tables, and again in moving from the tinners' tables as soldered or sealed.

Three years ago I had a few thousand pounds of honey put up in one, two, and three pound cans, which, by a leak in one of the steam-chests allowing a leakage of condensed steam, was somewhat diluted by water. Upon discovering the leak this honey was laid aside to feed bees when needed; and in feeding it out I found that it had all candied more or less. Some of it was solid all through. Most of it, however, was only partially candied, being liquid and solid honey mixed. This fact would seem to indicate that the heating process might not prove effective with *unripe* honey.

I want my honey *all capped over* before it is extracted, unless where I have solar evaporators for finishing the ripening proceess, and I believe the honey *immediately* and *fully* ripened in the evaporator is equal in flavor to that ripened in the hive.

Referring to the article copied from the *Exponent*, permit me to say there are some slight and unintentional mistakes. When we commence canning we find most of the honey candied solid, or nearly so. Some of it is much more solid than that in other barrels or cans, and the "capacity of the factory" is gauged by the solidity of the honey. Where candied hard, we can not melt as fast as indicated, without making our heaters hotter than I think the safety of the flavor of the honey will admit. Again, I make use of no lead pipes; and as to my traveling most of the year, I plead guilty so far as the winter is concerned; and sometimes, too (this season for instance), until pretty well along in the spring; but I stay with the bees all summer, and until they are fixed for winter.

I have observed the fact, that the longer the honey remains in the solar evaporator in the rays of the sun—in other words, the more *thoroughly* cured or ripened the honey is, the slower it is to candy. In fact, when canning honey a year ago the early part of this winter, I found considerable honey that had been in the evaporator an unusual length of time, and very thoroughly cured, then drawn off into 60-pound cans, simply to store away until the canning season, that had not candied at all, while the rest of my crop was hard. This is the first time I have ever had any honey in early winter not candied before heating and sealing. A. CHRISTIE.

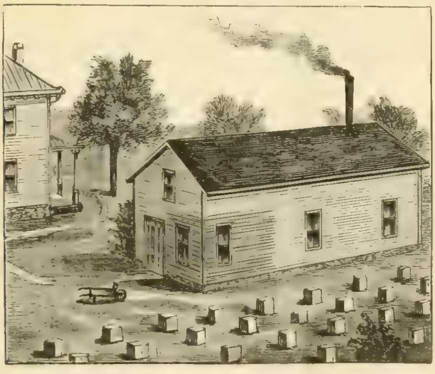
Smithland, Iowa, April 11, 1888.

Thank you, friend C. The point you bring out, that unripened honey is more apt to candy, is a good one; and it may be that one great reason why some honey will keep in an open dish the year round, without candying at all, is because it is so thoroughly ripened. Attention has been called to the fact that a very nice article of California mountain-sage honey will not candy, even in zero weather. We have also had specimens of honey from alsike clover that behaved pretty much in the same way. Now, is it not owing to the thorough ripening as well as to the source from which the honey is obtained?

DOOLITTLE'S SHOP AND HONEY STOREROOM.

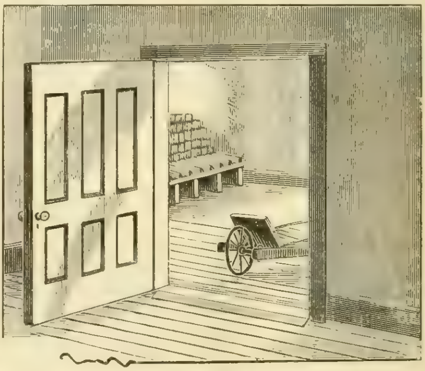
ALSO HOW TO KEEP HONEY THREE OR FOUR YEARS, OR LONGER, AND HAVE IT KEEP GETTING BETTER INSTEAD OF WORSE.

I HAVE been asked to give a description of my shop, and also to tell how I keep my honey so as to have it growing better after it is taken from the hive, as I have spoken of in back numbers of GLEANINGS. To do this, friend Root thought it best to have some engravings made, so that the description would be better understood.



DOOLITTLE'S SHOP AND HONEY-HOUSE.

Fig. 1 shows the shop as viewed from the southwest side of the apiary. It is 32 feet long by 16 wide; but if I were to build again I think I would have the width at least 24 feet. In this shop, during the winter season, I do all of my work, such as getting out sections, hives, wide frames, honey-boards, and all that is necessary to be done along this line, besides doing much work in the line of getting out bee-fixtures for my bee-keeping neighbors, and sawing and planing for any who wish it for all ordinary purposes, although not rigged for very heavy work, as my engine is only a six-horse power, and my saws and planer gotten for my own use in making hives, etc. I am frequently asked if it pays me to do this work myself, instead of buying of dealers in supplies. To this I answer both yes and no. It certainly pays along the line of being independent, and being able to make any little thing I wish to use for an experiment; but when it comes to dollars and cents, if I call the interest on my machinery any thing it does not pay at the present low prices of supplies. I wonder if many, if any, of those who are reading this realize what the close competition in supplies has done for those who purchase their bee-fixtures at the present time. When I first began to keep bees I bought my supplies; and what do you suppose the prize boxes, or sections, as they are now called, cost me? Well, if you open wide your *eyes* I shall not blame you, for the price paid was $40 a thousand, nailed, or $30 in the flat. I could not stand this high pressure, so I bought machinery and got out my own. From this, I saw that there was money in the supply-business, at the *low* (?) price of $20 per M., for sections in the flat, so I started them at that price and did quite a good business at it for a time; but soon some one cut under me, as I had done for those before me, till the price went down to $15, then to $12.50, $10, $8, and finally to $5 and less. When the price got as low as $8 I said those who wished to work at the business could do so for all me; and from that time till the present I have had 50 cents an hour for work with machinery, and the man who has the work done helps me at the saws, etc., or else I do not work. In getting out *my own* hives, etc., I am engineer, fireman, and sawyer at the same time, not hiring any of any amount, as I have before said in GLEANINGS.



AN INTERIOR VIEW INTO THE HONEY-ROOM IN THE SHOP.

In the northeast corner of the shop is the office, in which I write all of my contributions to the different bee-papers, and for a few agricultural journals, while the most of my private correspondence is done at the house, as seen at the left of picture, that being done evenings. The reader will notice that, at the southwest corner of the shop, there is a portion of it that looks darker than the rest. This is where the storeroom for honey is, and is painted a dark color so as to absorb the heat from the sun.

This makes the interior very warm in the afternoon of any clear day; and when there are piles of honey in it they get warm enough to carry the heat over to the next day, so that I often get the heat inside to average from 85 to 90 degrees for weeks at a time. In cloudy weather I resort to an oil-stove to keep the heat up.

We are now ready for Fig. 2, which shows the interior of the honey-room as seen through the open door, from the inside of the shop. This room is 7 feet wide by 10 long, it being 8 feet high. In this room I had in 1877 nearly 11,000 pounds of honey, which is about all it will hold and give room for the operator. To the left, through the door, can be seen one of the platforms on which the honey is stored, and the pile as it looks when first started. On the floor I first place sticks of the right length that are a foot wide by 4 inches thick, setting them up edgewise so as to raise the pile of honey sufficiently from the floor to fumigate it with sulphur should the moth larva be troublesome. Across the top of these sticks I place two plank of the right length, they being a foot wide. This, with the numerous 2x2 sticks upon which the honey immediately rests, raises the pile up from the floor 16 inches. The honey is now piled upon these platforms in the following manner: A section is taken to space the 2x2 sticks, so that they are far enough apart so that the ends of the sections safely rest on the edges of each stick on either side, and set out from the wall 4 inches each way, so that the air can circulate freely all about the pile. Then another stick is placed so the next section rests on that, and also on the stick the last section before it rested on. In this way I keep on till I have one tier of sections horizontal, clear across the room the 7-foot way, when another tier is placed in front of the first, so we have two tiers across, and only one tier high. The next tier is placed directly on top of the first, and the next, or fourth tier, on the sticks in front of the second, while the next is placed on top of the second, and the next on top of the highest one, or the third one we piled. In this way I keep piling till the top of the room is reached, when our pile looks like a stairway of little short steps; yet, as will be seen, if I have made it plain, the air can go up between every tier, all around the whole pile, and through it from front to rear; also the fumes of burning sulphur, if it should be needed. Both the outside door to the shop and the one into the honey-room are made large and wide so a wheelbarrow can be run in full of honey and out when empty. Now, if we keep the temperature of this room at from 80 to 100 degrees our honey will grow better and riper every day till it gets so thick and good that the once thin honey in the open cells, around the edge of the box, will not run out, and the whole will be like "jack wax" as we boys used to term thick maple molasses put on snow. If this temperature is kept up, the honey will not deteriorate one particle for all time to come, as I said in the Query Department not long ago, as I know from a test of four years' duration; but let the temperature go down to 50, and sweating and deterioration soon begin. If all is not plain, tell what it is, and I will most gladly explain. G. M. DOOLITTLE.

Borodino, N. Y., April 16, 1888.

Old friend, it is quite a privilege to me to be able to look into your workshop and honey-room, as well as to look at the outside. I wonder if it looks as slick and clean and tidy as we see it in Fig. 2.—We thank you for the compliment you have paid to the supply-dealers who have survived the close competition of later years. We thank you, too, for putting it so good naturedly, even if you did not happen to be one of the "survivals."—In the matter of ripening honey, I believe you are right, and it is all very plain and clear, except the matter of keeping up the temperature every winter. You surely do not keep the temperature above 70° in the winter time, do you? I know it is an easy matter to keep a high temperature all night in the summer time. We have had rooms that kept a high temperature when we did not want it, where they happened to be shut up.

BEES AND BEE-KEEPING—VOL. II.

A CONTINUATION OF THE REVIEW FOUND ON PAGE 294.

IN the last issue I believe we had gotten as far as the third chapter. Chapter IV. considers the subject of natural increase; under this, the effect of advancing spring breeding, increase, premonitory signs of swarming. While on this subject, speaking of a swarm about to come forth, Mr. Cheshire says: "Some tell us that a signal within is given, since the teeming thousands seem to be seized simultaneously with the same violent agitation. But of this it is best to confess we know nothing, except that the bees about to leave the place of their nativity for 'pastures new' commence to run about the interior of the hive in wild excitement."

Speaking of the peculiar way in which a new swarm enters the hive just after the queen has entered, he says: "Singularly no writers mention what I have always observed; viz., if the queen be within, bees will continue to issue from the skep, running from fanner to fanner in alternate diagonals, giving each one two quick taps with the antennæ, which seem to me to convey: 'All right; keep it up; mother's at home, but she is terribly hot.' The fanners thus encouraged do not relax their exertions for a moment."

On page 132 we see copies of engravings of swarming-devices, which are given in the A B C book. The Shepherd device, the author has modified in such a way that the box will always remain perpendicular, no matter at what angle the pole may be.

Under the head of wing-clipping, Mr. Cheshire thinks that, after the fecundation of the queen, the process in no way interferes with the queen's natural movements. He says that perfect wings receive nutrition during the whole life of the bee, and that both nerves and tracheæ pass into them. He concludes, therefore, that the removal of the wing may not be so absolutely unimportant as some assume, although he thinks it is not prejudicial, and that "Prof. Cook's suggestion (that the queen may be made even more vigorous through the excision, 'as useless organs are always nourished at the expense of the organism,' is quite accurate." We are glad to see that Mr. Cheshire indorses our Prof. Cook; and especially so as he has taken occasion in the former volume to disagree with him so severely in two or three statements. Mr. Cheshire concludes by saying the wing-clipping is not so necessary with them (in England) as with the Americans.

In this same chapter is illustrated and described the Alley queen-trap, or swarm-arrester. He says there is a common likeness between all queen-traps; but the one used by Mr. Henry Alley is rather given the preference. In concluding upon the subject of drone-traps, the author says: "These appliances may be useful as drone-traps, to secure, if possible, mischief-workers in purchased stock, or in temporarily preventing a swarm from making off from a hive under suspicion; but they are more likely to suit the tastes and needs of the amateur than to find favor with those who look to the production of honey as a serious matter." Further experience at the Home of the Honey-Bees with queen-traps rather inclines us to agree with this opinion.

In speaking of that strange peculiarity that swarms have, of clustering upon an old bush or limb occupied by former swarms, Mr. Cheshire is inclined to disagree with the statement so often made, that scent is that which draws them to these particular favored spots. He says that, notwithstanding long intervals during which the leaves of a particular limb or bush have dropped off, to be succeeded by others, the colonies will invariably seek that limb for clustering. After the lapse of a whole season he thinks it improbable that the scent could remain upon a limb sufficient even for bees to detect. He is inclined to lay the source of attraction to particles of wax and propolis which may be left on the limb by a preceding swarm.

In the same chapter the author dwells somewhat upon the subject of queen-cells, the spinning of the cocoon of the queen compared with that of the worker. He says the former is spun rather irregularly, while the latter is quite regular. To obtain the cocoon for the purposes of making observations, the cell is placed in ether, and shaken. The process should be repeated until every trace of wax has disappeared, when a very pretty object for the microscope remains. Mr. Cheshire explains, also, the phenomenon frequently observed, of a mature bee found dead in a queen-cell. He says, after a young queen is hatched, sometimes the little lid or cap of a cell will fly partially back. An inquisitive worker, on a tour of inspection, makes his way inside, and, the lid closing, it is waxed tight by the outside bees. The result is, the worker is imprisoned, and dies.

On the subject of the piping of queens, Mr. Cheshire thinks we must dismiss the idea that the sound is produced either by spiracles or breathing-tubes; the mouth, being merely an opening leading to the stomach, is necessarily incapable of any form of utterance; that the wings are not concerned in its production, since clipped queens make the noise as before. Reasoning from the analogous formation of other insects, the author is inclined to believe the sound is produced by stridulating organs, and that these are located on the third and fourth abdominal plates.

ARTIFICIAL AIDS TO COMB-BUILDING.

Chapter V. is devoted to the above, and considers not only foundation, but small pieces of comb, comb-guides, and wax midrib. In perusing this chapter, the reader is a little bit confused at first as to the distinction betwen wax midrib and foundation. Indeed, our brother editor, Mr. Newman, in his review, says Mr. Cheshire uses the term wax midrib instead of foundation. A careful reading of the chapter, however, convinces us that the former is embossed wax sheets, without side walls.

He ascribes the invention of foundation to one Kretchmer, a German, in the year 1843. The credit of this invention is usually given to another German, named Mehring, who made public the idea in 1857. Very minute particulars are given by the author in regard to different methods of making foundation, and one can easily see that he has had experience. The plaster molds are described; but after all, Mr. Cheshire does not consider them satisfactory. He says they are "inherently messy," and "Mr. Root, whom I imagine to be among the neatest of men, gives such an account of the dropping of wax when he tried his hand, that I felt almost vain of my tidiness, while it was evident that something different was needed to settle the problem."

We are next presented with a beautiful engraving of a comb-foundation mill, as made at the Home of the Honey-Bees. He says, that foundation made on machines of this kind "acquires at once an almost metallic luster. . . American enterprise saw there 'was money in it,' and Mr. A. I. Root, whose paintings in wax have produced such an unsightly picture, quickly had machines ready for the market. And our friend Mr. Raitt, who became, to use his our words, 'the happy possessor of a machine, the first of the kind on this side of the Atlantic,' was soon busy turning out foundation of a delightful finish and of great tenacity. Many alterations and some improvements have followed; but even yet no pattern seems to stand better than that made by the earlier machines."

In speaking of the different ways of strengthening foundation, he says that the Vandeusen was made with fine iron wire imbedded by the rolls into the foundation. This promised to remedy the difficulty; but experiment showed that the larvæ died immediately over the iron wires. He says, "This fatality seems to have been due to neglecting to use wire properly protected by tinning." Further on, in speaking of the relative value of the natural-base vs. the flat-bottom foundation, he says: "Theoretically, it would appear that the flat-bottom foundation would be stronger than that bearing the impress of the rhomboid. Practically, the opposite is true. I personally inspected in an apiary last summer over 100 sheets of flat-bottom foundation that had broken down and sunk into every conceivable curve, by the side of sheets made on a Root machine, not one of which had failed;

and yet the theory was not at fault. In the former, the rhomboids are small and the cell-walls very wide, most of the material forming them being driven from under the dies. Each wall, in fact, is made by two lots of wax flowing, during the squeeze, toward each other, but which become actually one, and, as a result, present little resistance to fracture or tensile strain." This subject comes in with peculiar interest just now, the matter having been brought up by one of our best writers and most extensive bee-keepers, Mr. P. H. Elwood.

The author speaks also of combs built upon thin pine boards dipped, and passed through the flat-bottom foundation-machine. He says, " Good combs are at times built; but if the bees, in excavating, get down to the resisting wood, instinct seems to tell them that no cell can back on to the one in hand." This morning, as we took a visitor into our little room containing traps, bee-fixtures, etc., that have been sent in during various times for our opinion, we espied a frame of board foundation. It was plainly evident that it had been given to the bees, for the shallow wax Vandeusen cells had been gnawed away on one side, and in various other places the board had been made bare, showing that the bees did not regard this sort of foundation with favor. We have experimented with this kind of foundation before, with similar results, but this old frame was doubtless one we thought best to lay aside as a possible reminder of former experiments.

In this same chapter, a discussion takes place as to the proper size of the cells. Mr. Cheshire gives measurements and weight, showing that there is somewhat of a variation between the different kinds of bees. He says: " I have a fine slab of perfect workmanship turned out by Carniolan stock, measuring all over it exactly 3½ cells to the inch. It is to be recollected, that the usual measurements given for comb foundation are about five to the inch. It is to be observed, therefore, there is considerable difference between the size of cells in the comb made by Carniolans mentioned by Mr. Cheshire, and that in foundation usually made. To show the difference in the size of Carniolans and Cyprians, 20 each of Cyprians and Carniolans were taken for comparison. He says that 20 Carniolan workers weighed 40 grains, and 20 Cyprians 28 grains.

THE BEE AND HONEY SHOW AT THE OHIO CENTENNIAL.

DR. MASON MAKES AN APPEAL TO OHIO BEE-KEEPERS.

THE following is the premium list for bees, honey, apiarian supplies, etc., for the Ohio Centennial Exposition to be held at Columbus, O., from Sept. 4, to Oct. 19, 1888.

No entry-fee will be required, and no charge made for space in this class, and all intending exhibitors in this class will be furnished with entry-blanks, rules, regulations, etc., free on application to me. Others desiring premium lists, etc., should apply to L. N. Bonham, Secretary, Columbus, O.

Exhibitors can begin arranging their exhibits on Aug. 21. Exhibitors' admission tickets, good during the Exposition, $5.00. Competition and exhibition in this class is confined to Ohio.

A building is to be erected for this Department, and it is *very* desirable to know *at once* how many will want space, and how much they will want for honey, and how much for other exhibits, so as to have the building of suitable dimensions; and I hope such as intend to make an exhibit will let me know immediately, what space they will need. Some time since I made such a request in GLEANINGS, and only two responded. At that rate no building will be needed, for a corner in some other building would do, and Ohio bee-keepers would have occasion to be ashamed of their lack of interest in this display of the State's material progress in this direction during a hundred years.

It is expected that the annual meeting of the North American Bee-Keepers' Society will be held in Columbus during the Exposition, and Ohio bee-keepers *ought*, and I trust *will*, have pride enough in the good name of their State, and in this industry, to make the grandest display ever made on this continent.

As shown below, there is a first, second, and third premium offered on most of the exhibits, or articles, and the total amount offered is over $400, being the largest amount ever offered by any State.

Such exhibitors as do not desire to remain at the Exposition can leave their exhibits in my care, and they will be looked after and cared for to the best of my ability, and without charge; and such as do not care to arrange their exhibits themselves (except for display of comb and extracted honey) can send their exhibits to me at Columbus, O., after Aug. 21, with all charges paid, and I will see that they are properly placed and cared for, without charge, and they can visit the Exposition at such time as will best suit their convenience, and find their exhibits all in place.

I am in hopes that we shall be able to have an apiary established on the grounds, and have public manipulation of the colonies by bee-keepers who may visit the Exposition. As the Exposition is intended to show the *material* advancement of Ohio in a hundred years, it will be " just the thing " to have on exhibition the most antiquated appliances, as well as the most modern, and to show also how bees used to be kept and honey obtained, and I hope those having old things of interest in bee-keeping, whether they live in Ohio or not, will correspond with me with a view to having such things on exhibition.

The old " log gum," box-hive, and the straw hive, all with bees at work in them, will be among the attractions, " if it takes all summer " to get them. The cow-bells, tin horns, and tin pans that used " to make the bees alight," will recall to some " the days of childhood," and make them young again.

Here is the Premium List in the Apiarian Department.

BEES, HONEY, AND APIARIAN SUPPLIES.

A. B. Mason, Auburndale, O., Superintendent.

All entries close Aug. 6. Any thing competing for a single premium can not be included in a display. Colonies must be exhibited in such a shape as to be readily seen at least on two sides. Such provision will be made for the display of comb honey (and other articles that might be injured by bees), that it can be exhibited without crates. Every thing *must* be in place by the morning of Sept. 4, 1888.

Best display of comb honey (largest and most attractive)	$25.00
Second best	20.00
Third best	15.00
Best display of extracted honey (largest and most attractive	25 00
Second best	20.00
Third best	15.00
Best sample of extracted honey, not less than 20 lbs., in best shape for retailing	5.00
Second best	4.00
Third best	3.00
Best sample of comb honey, not less than 20 lbs., in best shape for retailing	5.00
Second best	4 00
Third best	3.00
Best colony of bees, numerical strength and purity of race being competing points	10.00
Second best	8.00
Third best	6.00
Best race of bees, numerical strength, and purity of race, the competing points	10.00
Second best	8.00
Third best	6.00
Best collection of honey-producing plants	15.00
Second best	10.00
Third best	5.00
Best display of wax	8,00
Second best	6.00
Third best	4.00
Best foundation mill	6.00
Second best	5.00
Third best	4.00
Best foundation-press	6.00
Second best	5.00
Third best	4.00
Best foundation for a brood-chamber, made on the grounds	4.00
Second best	3.00
Third best	2.00
Best foundation for surplus, made on the grounds	4.00
Second best	3.00
Third best	2.00
Best foundation for surplus, sample of not less than 10 lbs.	3.00
Second best	2.00
Third best	1.00
Best foundation for brood-chamber, sample of not less than 15 lbs.	3.00
Second best	2.00
Third best	1.00
Best honey-cake, with recipe for making	3.00
Second best	2.00
Best honey-cookies, with recipe for making	3.00
Second best	2.00
Best honey-jumbles	3.00
Second best	2 00
Best honey candies	5.00
Second best	3.00
Best honey vinegar, not less than 5 gal., displayed in glass	4.00
Second best	3.00
Third best	2.00
Best display of queens, in such shape as to be readily seen	4.00
Second best	3 00
Third best	2.00
Best honey-extractor	5.00
Second best	4.00
Third best	3.00
Best wax-extractor	3.00
Second best	2.00
Third best	1.00
Best bee-hive for all purposes	4.00
Second best	3.00
Third best	2.00
Best bee-hive exhibition	3.00
Second best	2.00
Best bee-smoker	3.00
Second best	2.00
Best arrangement for securing surplus honey	3.00
Second best	2.00
Third best	1.00
Best sections for comb honey, not less than 50	2.00
Second best	1.00
Best apiarian supplies and fixtures	8.00
Second best	6.00
Third best	5.00

Auburndale, O. DR. A. B. MASON.

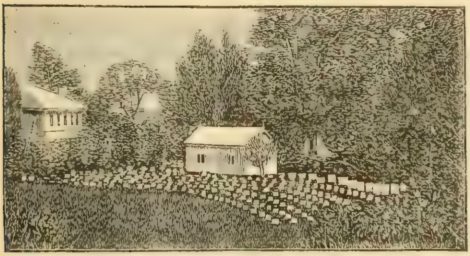
Do you really mean to say, doctor, that only one individual has applied for space at the Ohio Centennial besides ourselves? If so, there is certainly something amiss somewhere. Our Ohio people get up good displays of honey, and of implements and supplies in general for the apiary; and some of our Ohio exhibits have been equal to any I have ever seen anywhere, if I may except the exhibition at Toronto. The Canadians are proverbially a little ahead, any way. May be we had better get some of them to come down and show us how—especially as this is our centennial year. Now, look here, brothers and sisters of Ohio, up and be doing! It does not matter whether you feel like it or not; and it does not matter so very much even if you think you can not afford it. You *must* afford it. There are certain things that must be done any way; and when the credit and respectability of the State of Ohio are at stake, we have no business staying at home. We have no business hiding our light under a bushel. Do what you can. Ohio has bright, wide-awake bee-men and bee-women. They can talk and they can write and they can visit. (I have the women-folks in mind more particularly when I make this last remark.) Now, just tell Dr. Mason at once how much space you will occupy, and then set about it at once making preparations for it. Bring plants that bear honey, and every thing else that is curious—seeds of honey-plants; Japanese buckwheat of your own raising. Have a neatly printed report in regard to it. Set about having honey displayed in attractive shape, especially for exhibition. At Indianapolis we had beautiful lettering worked out in honey-comb. Bring your hives and implements, and any thing you have used and found to be a good thing. Bring, also, your old traps—something that belonged to your grandfather—some of the first honey-extractors. May be I can find the first one that A. I. Root patched up. Is there a straw bee-hive in the State of Ohio? Somebody should bring an old bee-shed, with a lot of old box hives; one of the first movable-comb hives ever made anywhere was made in Ohio—yes, in Medina County. Perhaps our good friend W. A. Shaw, when his eyes fall on this, can tell us in whose possession this old hive is to be found. If I am correct, it was made and used before the year 1850. It was described in the *Scientific American* at about that time, so there is not any mistake about it. We expect, of course, father Langstroth to be present, if a kind Providence spares his present good health. Mr. Langstroth can tell us some excellent stories of olden-time bee culture, and may be he can hunt up some primitive implements. Let us have the old bee-books, published in 1700 or still further back. We happen to have a couple of them.

There is time enough to have a garden of honey-plants in bloom on the grounds. Dr. Mason, do you know of a man who can go to work now and get up this honey-plant garden? We want all the clovers and buckwheat, and some little basswood-trees—in short, every thing that grows in Ohio, that bears honey, so when bee-men go to look at them they will always know the honey-bearing plants afterward. Can not somebody from the Experiment Station take up the task? Prof. Devol would manage it nicely, and our good friend W. J. Green will give him very material assistance. I will furnish seeds and plants free of charge. Now, then, friends, catch hold of what I have offered, and add to it, and lay your plans, and act. We have applied for space for machinery for making sections, foundation, and perhaps some other things. Shall Ohio be voted behind the times in our industry?

A GLIMPSE AT AN AUSTRALIAN APIARY.

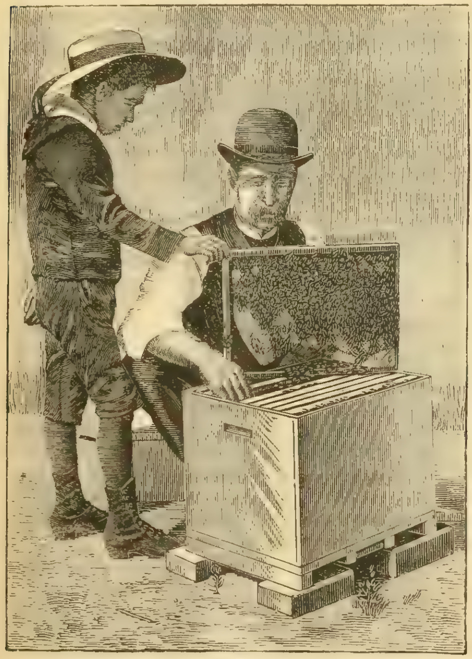
EXHIBITED BY AMATEUR PHOTOGRAPHY.

MR. ROOT:—I am obliged to you for your insertion of my statement in GLEANINGS of Oct. 1st. I should be sorry for any one to be misled by pictures too brightly colored. I send, under separate cover, two of my amateur photos. The one is to give you an idea of the size of our largest S. A. apiary, belonging to Messrs. Colman & May, at Mount Barker.



AN AUSTRALIAN APIARY.

The other is a practical proof of the temper of Cyprian bees. The gentleman handling the frame is Mr. A. E. Bonney, known by name to you. The boy is my youngest brother, aged 9 years; the open hive at which they stand contains Cyprian bees, the progeny of an imported Cyprian queen from Mr. Frank Benton. You will notice that neither Mr. Bonney nor my brother has any protection beyond their ordinary clothing.



PRACTICAL TEST OF THE TEMPER OF CYPRIANS.

I may say, that my camera and myself blocked the entrance to another hive of Cyprians whilst the photo was being taken, and that none of us had the slightest trouble from the bees. Lest any one should wonder at the boy being apparently content to stand where he does, I will add that I have accustomed him to holding frames of all sorts of bees so that he is not a stranger to the business.

The S. A. Legislature have this session passed the "Foul Brood among Bees" act, a copy of which I intend sending you. The act is in what will probably seem to you a crude form; but as the "liberty of the subject" has to be jealously guarded, we found it difficult to frame it in any other way. The act provides for fining any bee-keeper *knowingly* keeping hives, bees, etc., affected with foul brood. I can assure you the measure is necessary here. We are, as bee-keepers, daily in dread of outbreaks of foul brood in our own hives, as there are a good number of obstinate bee-keepers who will not recognize the danger of keeping this scourge amongst their bees, and who take no steps to eradicate it.

F. A. JOYNER.

Adelaide, South Australia, Dec. 15, 1887.

Thanks for your amateur pictures, friend J. You see we have had our engravers copy them, that our readers may get a glimpse of your far-away land. We are glad to see the boys work into apiculture; but please be careful that you do not get that nine-year-old boy stung so as to give him a backset. He may get along all right ninety-nine times out of a hundred; but as boys will be boys, by some little bit of carelessness, or absence of mind, the hundredth time he may make a bad move, resulting in letting loose the latent fire that Cyprians almost always have in reserve. I know you can work with them if you mind your p's and q's; but woe betide the one who forgets or gets careless.

THE FOOD OF LARVAL BEES.

PROF. COOK INTRODUCES TO OUR NOTICE OUR GOOD FRIEND STACHELHAUSEN.

MR. EDITOR:—Since the article which I wrote on the glands of bees and the food of larvæ, I have had some correspondence with L. Stachelhausen, of Selma, Texas, one of our German-American bee-keepers whose information and opinion are worthy of great respect. He does not accept the view of Schiemenz and Leuckart, which I presented, but that of Schonfeld. He presents his case with so much of reason that I am a convert at once, as all must be if the facts stated are as he represents them, and I have little doubt but they are. I am glad we have one in our brotherhood who is so conversant with German research, and so excellent a scientist, that he sees the true bearing of each fact. I hope that GLEANINGS will not let him longer hide his light under a bushel.

At my request Mr. S. has consented to the publication of his views. He asks that I comment upon the subject, which I am very pleased to do, as I had already contemplated sending another article to GLEANINGS, giving the views of Schonfeld. I have re-written the article, and have commented in ( )'s.

A. J. COOK.

OBJECTIONS TO THE GLAND THEORY.

Until 1870 it was believed that chyme was fed to the young larvæ, or, rather, that the larval food in the cells is chyme. In that year, Von Siebold examined and described the salivary glands of the bee. The large size of these glands seemed to indicate that they had some other purpose than to secrete the saliva. It seemed possible that they might secrete the larval food. Fischer described these glands a year later, and expressed the same opinion as to their function. Leuckart then declared that he had taught this theory to his students for years.

I then thought this theory very plausible, and probably the true one; but I expected further study and a closer examination, but expected in vain. V. Siebold, and probably Leuckart as well, worked on other problems. I supposed a microscopic examination of the secretion from these glands would prove the identity of the same with the food of the larvæ, but no such proof was forthcoming. It may be said, that there is too little of the product of the glands for analysis. But just this seems to indicate that the comparatively small glands can not secret so large a quantity of larval food.

(This view alone would not count for much. There is too little nectar in most flowers for a successful analysis; yet the bees gather pounds of it in a day. Supposing that the lower head glands of a single bee do not secrete enough material for successful analysis at any one time, yet thousands of bees might do this with the whole day before them, and have enough left to feed all the larvæ.)

In 1880, Schonfeld published his theory, which seemed to me nearer the truth.

Years before, Leuckart described the larval food as a granular, milky, uniformly colored fluid containing many microscopic corpuscles, similar or identical with the blood corpuscles, and with the corpuscles found in the chyle, or digested food, in the true stomach, which chyle passes directly through the walls of the stomach by osmosis. Wolff states that the blood corpuscles originate in the stomach.

Analogy of the mammalia favors the gland theory of Leuckart. It seems plausible that the young bee, like the young calf, is fed with milk; yet not so plausible when we remember that the larva is not a young bee. I would rather compare the larva to the embryo of a mammal, and this is nourished directly from the blood. The chyle of bees is, in fact, identical with their blood, and contains every thing necessary to build up the body of the bee; so it seems rational and natural to suppose that the chyle is the larval food.

(Analogy is always an uncertain argument. In case of animals as wide apart as the mammalia and insects, it really has no force. Grant that it had, even then in the case in question it would be difficult to say which way the argument pointed.)

With higher animals, the origin of the chyle is more complicated, and digestion is completed in the small intestines. In bees, the structure of the canal is different; and it is possible that chyle originates in the stomach.

(Here chyle must mean the sum total of digestion. With higher animals, chyle means simply the digested fat, and is carried to the blood through a special system of vessels, while the other products of digestion are mainly absorbed directly by the blood-vessels.)

If the larval food and chyle are identical, of course we must depend on the microscope to prove it. If we examine the stomach of the worker-bee we find more or less partially digested food, but no chyle.

(From the fact that, in examining many bees, I have never found the granular milk-like substance fed to larval bees, was my principal reason for accepting the secretion rather than the digestion theory.)

Schonfeld made the following experiments, and hereby is explained how the chyle can be found in the true stomach of the nurse-bee:

a. Honey colored by cherry-juice is fed to bees in a starving condition.

b. Honey colored by holly-juice is fed in same manner.

c. In like manner, honey mixed with pollen of the white lily, which is easy to distinguish with the microscope, was fed.

After feeding, in each case the contents of the stomach, and the larval food, were carefully examined with the microscope. In every case the food in the cells with larvæ was the same milky granular substance, with no color, nor any lily pollen. This larval food, then, could not consist of chyme or the material from the honey-stomach.

Every hour a nurse-bee was examined, and the process of digestion noted. The color was seen to fade out, *and true chyle was found, differing in nowise from the food given to the larvæ.* While in the intestine, red and dark-colored excrement, mixed with pollen-husks of the lily, were plainly evident. *Many bees were caught, just about to feed the larvæ, and the chyle was found in each case.*

(This, of course, is crucial. Not finding chyle, like larval food, in the stomach, does not prove its universal absence. Finding it once proves its existence. Granting the fact, the conclusion must follow.)

SALIVARY GLANDS OF BEES.

All mature bees—workers, drones, and queens—possess—

I. The upper head salivary glands, and

II. The thoracic salivary glands.

Besides these the worker-bees have

III. The lower head salivary glands.

Glands I. and II. have a common ending at the base of the ligula, in the groove formed by the paraglossæ. This secretion can, as the tongue is extended, flow into the groove and wet the ligula, but can go no further, because the ligula, or sucking-tube, is no fountain-pump, and the larva has no sucking-arrangement to draw this out.

(A stronger argument, perhaps, lies in the fact that drones and queens also have these glands, and surely they do not feed the larvæ. No one can think that these are the milk-glands, even if milk-glands exist.)

The secretion from glands I. is oily; that from glands II. watery, which would indicate that they possess a different function.

The function of the sucking-apparatus will show that the saliva is necessary to wet the ligula, and so make it possible that the nectar can ascend. It would require too much space here to explain the function of the sucking-apparatus, which is a misnomer, as bees neither suck nor lick.

(Very likely the saliva, like our own, may serve to aid in keeping parts moist; but from the size of the glands, and quantity of the secretion, this, as in our own case, must be incidental. I think our friend is surely mistaken in his last assertion. I think I have shown that bees do both suck and lick.)

If bees do change nectar more than to evaporate it—that is, if they change the kind of sugar (I am not sure that they do), then it is probably done by gland II. Such a change could be due only to a ferment, and could come only from the saliva.

(I know that bees change cane sugar to reducible sugar, both when fed cane syrup or nectar. I have had analyses made in both cases. While not all cane sugar would be reduced, most would be. That the saliva from glands I. and II. does this there can be no doubt. Honey is digested nectar, the digesting ferment being this saliva. While the drones and queen are fed in part by the workers, yet they take honey; and unless this is fully digested by the workers, the drones and queen must finish the work, and so must have glands I. and II.)

The most important purpose of glands II. or their secretion is for the test-organs which are in the groove at the base of the ligula.

(I do not understand this point.)

Very likely the secretion from glands I. may be used to wet and smooth the newly formed cells. Thus these secretions are true saliva, and can not be larval food. This is without doubt true. Yet organized liquids do often have a double use. The pancreatic juice in the higher animals digests starch, fat, and may digest the albuminoids—will in an alkaline liquid.

Selma, Texas. L. STACHELHAUSEN.

(Concluded in next issue.)

WIDE FRAMES VERSUS THE T SUPER.

SOMETHING FOR THE BENEFIT OF THOSE WHO ARE UNDECIDED WHICH TO USE.

MR. ROOT:—In GLEANINGS for 1887, p. 535, you say: "One very great objection to wide frames is the amount of labor entailed in securing a crop of honey by their use." "The chief difficulty seems to be in removing the sections, after they are filled, easily, quickly, and without damage to the sections." But in the A B C, 1884, page 116, you say: "When they are withdrawn, you can pry over and lift out the frame almost as easily as any brood-frame, and the operation of taking out the honey is very easy, and a very simple one indeed."

Now, the reason for calling your attention to this is, that I intend to get some supers of you this spring, if bees survive. I had made up my mind to get wide frames, but these two remarks quoted above make me doubtful. I haven't seen the T supers nor the wide frames; but as far as I can look into the matter, the wide frames must be preferable, for the following reasons: 1. The wide frames keep the sections more clean; the bees can't travel on the outside of the sections; 2. With wide frames, cross bees won't have so good a chance to pour out *en masse* as with T supers; 3. They can be put on one at a time; 4. No honey-board is needed; 5. The wide frames can also be used in the lower story. This is what I can imagine to be in favor of the wide frames, but I have had no experience with either.

Now, if you please, a few questions: 1. Would you positively advise a new bee-keeper to use T supers? 2. Is it really so much work to take out the sections of wide frames, especially with Dr. Miller's device for the purpose, illustrated in GLEANINGS some time ago? 3. Can you give any reason why as much honey can't be produced with the separators as without? 4. How is it with wide frames and T supers? can the bee-keeper see, when honey is capped over, without opening the super or frames?

Now, I may trouble you too much; but I should like to have a little more light on the wide frames, as to all the objections against them. Are they now made so they don't sag? G. A. LUNDE.

Frenchville, Wis., March 19, 1888.

Your extract from the A B C book, friend L., was written when I first worked out the idea of the one-pound section, and putting eight of them in a wide frame. The statement is, however, not so very far out of the way, as you will notice from the following communication from Dr. Miller. As he has had an extended experience in this matter of both wide frames and T supers, we have desired him to answer your questions at once. You will notice that his son Charlie, even now, can take sections from the wide frames easier than from the T super. Below is Dr. Miller's reply:

DR. MILLER CONTRASTS WIDE FRAMES AND T SUPERS.

One way of answering briefly as to my opinion of the relative merits of wide frames and T supers is as follows: I had a full supply of wide frames, and, after thoroughly trying them side by side with T supers, I *gradually* replaced them with T supers, and do not use a wide frame now at all, although more than 2500 of them are stacked up in my shop. As I have no interest in either, only as they help me to a good honey crop, this shows pretty clearly my view, although it might not satisfy others.

Noting, *seriatim*, the points made by friend L., and premising that, in theorizing, we often get the seeming for the real, I reply:

1. Theoretically the sections ought to be clean of propolis in the wide frames, but in fact they are not. True, the bees can not travel on the outside of the sections, and that's just the trouble. If they could, the sections would be cleaner. I have had frames in which the sections fit so tightly that it was difficult to get them out; but, no matter how tightly they fit, there was always room for the bees to crowd propolis between the top of the section and the top-bar of the wide frame. If I am rightly informed, Oatman has wide frames large enough so that there is ¼ inch space between the top-bar and the sections; and if I were to use wide frames anew, I certainly would try them made in this manner, so that the bees could readily pass between. Please remember that bees are not so much inclined to put propolis where they *can* go as where they *can't*. In the T supers the tops of the sections are entirely free for the bees to travel over the outside, and they are left quite free from propolis.

2. There may be something in this objection, although I never thought of it; but if wide frames are made with open tops, as they should be to tier up, then there is no difference. As I have never experienced any more trouble with the T supers than with wide frames in this respect, I do not count much on it. Come to think more about it, I believe the T super has the advantage; for a whiff of smoke can at once command the whole surface; whereas if wide frames with closed tops are used, as each frame is taken out a fresh relay of cross bees is ready for an attack.

3. Generally it is an advantage to put on 24 sections at a time, instead of 4 or 8; but there may be occasions where the latter is desirable.

4. I never used honey-boards with wide frames, just because I then knew nothing about Heddon's slat honey-board; but if I were to use wide frames now, I think I should use honey-boards. Whatever is placed immediately over my brood-frames, be it honey-board, wide frame, or T super, is sure to have bridges of comb built upon it; and if no honey-board is used, then this dauby comb must be cleaned off either the bottom-bar of the wide frame or off the bottoms of the sections. I would rather clean off the wide frame. I may remark, in passing, that J. B. Hall, one of Canada's brightest bee-keepers, uses top-bars to his brood-frames about an inch in thickness, and claims that no brace-combs are built over them. If I had not so many hives made as to make a change an appalling matter, I would certainly try these thick top-bars.

5. This is an advantage. It is not often, however, that I cared to use it, although better men than I may do so. If I cared to use it at all, it was only before any sections were put *above* the brood-frames, so that I could have a few sections on, to get the bees started, with little waste of heat, and I have sometimes put these sections, thus started, in T supers.

Now for your questions. 1. If he expected, in the future, to keep many colonies I should advise T supers decidedly. The difference in the matter of lifting a T super or a super of wide frames two tiers deep is a big item; and if the latter are handled frame by frame, the time consumed is a big item. If he expects to keep only a few colonies and the saving of time and labor is of no consequence, then he might do well to try both

2. No. I would rather take sections out of T supers; but it is quite possible there may be some prejudice in the case. I have had more practice of late with T supers; but my son, who has had more practice with wide frames, can take sections out of them easier than he can (possibly than I can) out of the T supers.

3. Tin being a good conductor, I suppose tin separators may cool off the cluster sometimes a little. Wood is not so objectionable. Then any thing that separates the cluster may be a hindrance; but I doubt if the amount of hindrance with wood separators is a very appreciable quantity.

4. With the T super you can, at a glance, tell whether the section is sealed at the top, but must raise one end, at least, of the super to tell if the section is sealed at the bottom. With closed-top wide frames you must lift out each frame to find how the sections are. If wide frames have open tops, and are only one tier deep, you can tell about the sections in them just as easily as you can in T supers.

5. My wide frames never sagged. The bottom-bars were ⅝ inch thick. C. C. MILLER.

Marengo, Ill., April, 1888.

Well done, old friend. I believe you have covered the whole ground completely. I agree with you in the main. I, too, observed friend Hall's top-bars an inch thick, said inch being used in order to push the sections so far away from the brood that the bees would not build brace-combs. I am well aware that this does away, at least to a great extent, with brace-combs; but does it not at the same time lessen the amount of honey or lessen the speed with which the bees can work the wax when you push them further away from the brood-nest? And I have always felt like making the same objection to the honey-board with the double bee-space. Now, who will answer *my* question?

THE WASPS, ANTS, AND PLANT-LICE OF CHINA.

OUR OLD FRIEND WALKER TELLS US OF ANOTHER KIND OF STINGS EXPERIENCED BY MISSIONARIES ONLY.

IF this is not much of a land for bees, it is quite a land for wasps and ants, and some kinds of the latter have stings like wasps and bees. There is one small kind which, when disturbed, will curve its abdomen upward and forward as if it had a sting in its tail, like a scorpion; and a magnifying-glass seems to confirm this impression. But there is another kind, half an inch or more in length, which has an unmistakable sting in the end of its tail. It is somewhat poisonous, though not so much so as a bee.

Plant-lice abound, and there is one kind which yields a kind of wax, but I have never observed it in this part of China. Last autumn I noticed on an orange-tree a warty-looking elevation of the bark, over an inch long, and about half as broad as long. On touching it I found it a very thin shell covering a spot where the bark was gone. Inside were a score or two of small black ants, and four or five large plant-lice. They were about as broad and long as a grain of wheat, but flat like their namesakes. I found that I had broken into an ants' *honey-farm*. There was fresh bark growing over the wound in the tree, just as it would under ordinary circumstances, so I don't think the ants were responsible for the original injury, but the cover looked as if they might have made it.

There is a species of ant, very common in the south of China, that builds nests like the wasps, of a paper-like substance. The paper is finer and more flimsy than the fiber of wasps' nests, and the nest is built *around* a limb instead of hanging from it.

On our return to this place last November we took down from a shelf a couple of books which had been lying there several months with their backs against a side piece at the end of the shelf. They were stuck to the end of the shelf with pine resin for a space of four inches or more. Examination showed that some insect, probably a wasp, like the mud-dauber of America, had made its nest in the three-cornered space formed by the rounded backs of the books and the end board of the shelf, using resin instead of mud. Year before last I saw in Japan a roll of paper which had been stuck together in like manner with resin by a species of wasp.

I will now tell you about one of the little stings of our work here. We had gone down the river about 12 miles in a boat to spend the Sabbath, and have a meeting with a few Christians. Their accommodations were so poor that we lived on our boat and went ashore for the services. We received two men to the church, one of whom especially pleased us very much by his humble, earnest bearing and intelligent answers when we were examining him. Monday morning word came that a very poor, aged, and feeble church-member living about 1¼ miles away had died early that morning. We all walked down to the hut in which he had lived, and found there the only relative, a nephew. They had been in very straitened circumstances, and the nephew had not money to pay for the cheapest kind of a burial. We asked three Christians who had come with us what they would do. One gave 500 cash, another 300 cash, and another 100, about the same as 50 cts., 30 cts., and 10 cts.; but 10 cts. is as much to them as one dollar is to us. Then we contributed $2.00, with which sum a cheap coffin was bought and other expenses provided for. We had to wait over till Tuesday for the funeral. Now, the Chinese sing miserably, and I always try to have some instrument to help me lead the singing; and for going off to country places I have found a flutina or accordion a great convenience. I took it with me to the funeral, carrying it under my arm. We gave the old man a good Christian burial, and I trust he was worthy of it; for in all his extreme poverty he had never asked us to give or lend him a cent. As we were walking along back, and had reached the village where we had been holding services, a man demanded of me what that was under my arm, and wished to look at it. As I had repeatedly played on it not fifty steps from his door, and was then in a hurry, I merely replied, "A musical instrument," and hurried on. I had forgotten about a miserable slander, widely circulated in all China, that, when Christians die, we dig out their eyes and teeth, cut out their vitals, etc., and use them to make medicine. That man at once went to asserting the truth of this slander, declaring to his neighbors that that flutina under my arm was a box in which I was carrying off the above-mentioned parts of the old man. We plan to live so open to inspection as to leave no room for such slanders, but one little slip may spoil it all.

Shaowu, China, Feb. 15, 1888. J. E. WALKER.

BEE-KEEPING AND POULTRY-KEEPING A SUCCESSFUL COMBINATION.

SOMETHING FROM OUR FRIEND A. H. DUFF ON THE MATTER.

FRIEND ROOT:—There is one question in your Question-Box that, you may be aware, I feel quite interested in; and the array of testimony set forth to this question in this case seems to be all one-sided. It also seems to me that the reason of this is, that not one of those leading apiarists has ever experimented in poultry-keeping. I have quite an extended knowledge of poultry-keepers, but I know those friends' names only as bee-keepers who have furnished this array of testimony. It seems to me, however, I saw somewhere that our friend Mrs. L. Harrison is a lover of fine poultry, and her reply in the Question-Box goes to substantiate my belief in the matter. Now, I do not doubt in the least that any one of these friends answering this question has any time outside of beeology to tinker with poultry or any thing else; but how about the hundreds and thousands of minor bee-keepers struggling to secure a livelihood by bee-keeping exclusively? And how many of this number have not time to combine something else with this pursuit to make a more profitable advancement? As I said in starting out, I feel interested in the question, because I have actually experimented in the matter, first, as to bee-keeping exclusively; and, second, as to combining poultry and bee keeping, one and both of which have been my exclusive business for twelve years. I have given each subject the necessary thought and study to acquire a knowledge equal to that which is ordinarily obtained at least. Although I have studied bees much longer than poultry, I will say that I am totally wrapped up in both pursuits as a profitable combination working together harmoniously. I have given both pursuits the same show in bringing them before the public, and make them both specialties alike.

So far as my experience goes, I find poultry-keeping as profitable as bee-keeping, and the two make a profitable combination. I have just turned to my ledger, and I find that, since the 10th day of January, 1888, up to this present writing, March 22, which is two months and 12 days, I have sold 106 fowls, bringing me in cash $174.50. Now, it will be remembered that this is at a time when the general bee-keeper has no employment whatever, and must await, in a great measure, the winter's doze of his bees from fall to spring when his time may be taken in reaping the poultry-men's harvest, which occurs during this time. Now, I wish it to be distinctly understood that I am speaking of *thoroughbred* poultry as being the poultry demanding attention, although there is not a bit of doubt that a fair profit is obtained from market poultry and eggs. If you put thoroughbred poultry and thoroughbred bees on an equal basis in the agricultural press, and before the agricultural masses, you will find that poultry predominates ten to one.

To convince you that I am in real earnest, I will say that I have recently purchased a breeding-pen of six hens and one cock, for which I paid $28.35 in cash; and from past experience I feel confident that this investment will pay me a larger per cent than any thing I have heretofore invested in either pursuits. If bee-keeping and poultry-keeping can be profitably combined, where is the consistency in saying that, when these pursuits are developed into a large business, one or the other of them will be dropped? Suppose we cite, for proof of this matter, the "Home of the Honey-Bees." Would we ever have heard of this great manufactory of bee-fixtures combined with "household conveniences," poultry-netting, etc., at Medina, if friend Root had adhered to such opinions as he gives in the footnotes of this Question-Box? We are inclined to think it would never have reached even the "windmill" stage of proceedings. I hope Mrs. L. Harrison will not allow me to be totally devoured on the biddie question. A. H. DUFF.

Creighton, O., March, 1888.

Friend D., your last point is a clincher. I thought I would not say a word, for there did not seem to be much to be said; but I want to add this: I commenced keeping bees for the fun of it. Finally it got to be my regular business to such an extent that I wanted something else for play. I should be afraid, however, to have the poultry and the carp and the garden stuff grow to such proportions as the bee-business has. I frequently have orders for poultry, but I tell them I have none to sell. In fact, I don't want orders; neither do I want orders for carp. Some say, "Why, couldn't you make it pay?" But I don't want it to pay. I want to have some recreation that has no dollars and cents about it.

MAKING FOUNDATION WITH A THIN BOARD FOR THE BASE OF THE CELLS.

ALSO HAVING SAID BOARD COVERED WITH CELLS ON ONLY ONE SIDE.

DEAR SIR:—To-day I send you by mail a package containing a fraction of a frame intended for extracting, having a thin board for the base of cells, and cells on only one side. I send, also, a piece of thin board with comb foundation, on same principle as the above. Frames with board and cells of the same kind as the first-mentioned sample were constructed by me by slicing off the cells from one side of the old comb, and attaching to the board by melted wax.

The first week in January I put a few frames of this kind in the center of a good colony of bees, to experiment with. They were accepted by the bees, and some were filled with honey that I fed the bees. The foundation put in on the same plan, and at the same time, was not drawn out much by the bees, owing to the very cold weather and unseasonable time.

My idea was, to invent a comb for extracting that has cells on one side only, the other side forming a smooth straight division-board.

Thin boards of some soft wood ⅛ inch thick, nailed, when furnished on one side with comb, to 2 outside edges of the frame, I found answered my purpose best, although tin or some other material may be used. This board foundation I make in the following manner:

I take two of these thin boards, previously cut to right size; hold them tight together with my hand, then dip them in the hot wax, and I then have two boards, each waxed on one side. I leave the two boards together when dipped, and run them through the foundation-mill in that way. The rollers of the mill will, of course, have to be set apart to admit the two boards, getting the machine out of gear; therefore the machine will have to be changed, so as to keep it in working order when the rollers are set apart. A Given press, I think, would answer very well in pressing one board at a time. This new device, I think, will prove to be of great value in extracting honey on a large scale. The main object is to prevent the queen from laying eggs in combs designed for extracting, which I believe will be accomplished by this new plan. But this is not all. The comb, having cells on one side only, will simply have to be uncapped and extracted on one side; and as the other side of the comb has a straight board surface, the next comb facing it will, when capped or sealed, be as straight as a board, and the removing of the capping, as compared with bulged-out combs, is an easier and quicker job. Although no wiring is needed, the frames and combs will be very solid and firm, and great force and speed can be used in extracting them.

I conceived this plan by reading a German bee-journal, in which I found it stated that Mr. Koerbs, a German bee-keeper, had found out a new kind of foundation which the queen would not use for laying eggs in; but Koerbs was keeping his invention secret. This notice set me to thinking, as I have long wished for a plan to keep the queen out of the extracting-chamber, without using any bothersome excluders. About January 1st I had worked out and perfected the new device as given above. April 1st, of this year, however, I read in another number of the above-mentioned bee-journal, that Mr. Otto Shulz, of Germany, has procured a patent for Germany and Austria, on the same principle, differing from my invention only in the mode of construction. The patent, as I understand, was granted him Jan. 31, 1888.

My object in writing this is to show that I can make affidavit, and prove by witnesses, that I made and perfected my invention about Jan. 1, and before I heard or knew of any other similar device, and is original with me. Therefore I send you, Mr. Root, samples, description, and facts, and would ask the favor of you to insert this in GLEANINGS. I do not wish to secure the exclusive right to the new device in this country, and I hope by publishing it in your paper to prevent other parties from getting a patent on the same in this country, and have it free to all who wish to use it.

JULIUS HOFFMAN.

Canajoharie, N. Y., Apr. 10, 1888.

Friend H., if you have been conversant with our A B C book, you will remember that, a few years ago, we gave a very strong recommendation to combs built out on thin wood, and foundation with wooden bases was made and used by a good many. But in our case, the queen raised brood on the wooden board as well as anywhere else. We have also, at different times, tried combs built on tin, cloth, paper, wire cloth, and every other substance imaginable. None of these things are practicable. A thin wire stretched once in two or three inches answers the purpose better than any other arrangement. They were discarded mainly because of the great quantity of wax that was necessarily used in the bottoms of the cells where they are attached to the board. There is no way to save this wax except having the bases made of wax, like natural comb. The idea of having the cells on one side of the board and not on the other, I am sure is not patentable. The following article, bearing on this subject, is from no less a personage than C. J. H. Gravenhorst, of Wilsnack, Germany.

COMB WITH CELLS ON ONE SIDE.

A KIND LETTER FROM C. J. H. GRAVENHORST.

ONE day in the month of September, last year, I received a letter from a friend, a bee-keeper, Mr. Koerbs, at Bad Berka, in Tem, Germany, in which he told me he has been successful in producing a new comb foundation. For a few years he had his invention subjected to test, and found that it works very well. Careful observation of the bees, suggested by a remark in the third and fourth edition of my book, "The Practical Bee-keeper," had prompted him to make experiments. His new combs, Mr. Koerbs told me, had the following advantages: 1. They were made of extra-fine beeswax by means of a hand-press, and were not used by the queen for breeding, even if the combs were inserted in the brood-nest. 2. They were very durable. 3. The most delicate combs would stand the use of full force in extracting the honey. 4. The honey is extracted very quickly, the operation requiring scarcely half the time it takes to empty other combs. 5. In bad seasons these combs remain empty, not being used for breeding, there being, unfortunately, no honey to collect. 6. The bees do not carry pollen into their combs. The separation of the honey-compartment in the hive from the brood-nest becomes superfluous. I wrote to Mr. Koerbs that he promised a good deal. Though I had known him as a successful bee-keeper and fortunate inventor of a very good frame machine, I nevertheless was not oversanguine in regard to his latest invention. But he offered to give me particulars of his invention if I would give him my word of honor not to divulge his secret. Full particulars were given me, and in addition I received one of Mr. Koerbs' artificial combs completed by the bees, from which the honey had been extracted several times. The matter appeared to me very simple, and I thought, "If this new invention should accomplish only half of what Mr. Koerbs expects it to do, we shall undoubtedly see a great revolution in the manufacture of foundation as well as in bee-keeping generally."

In order to enable bee-keepers to manufacture their own combs, Mr. Koerbs has started the publication of a pamphlet, in which his experience, as also the manufacture of the combs and the mode of using them, are described. Any one who engages to buy of him said pamphlet, at the price of 25 cents, will in due course receive a copy postpaid. The pamphlet would be sent to all subscribers on the same day, in case he could get at least a few thousand subscribers.

But, alas! only 350 subscribers have engaged to buy the pamphlet. Many of the bee-keepers condemned this way and pleaded for a patent. What should he do? Of course, he applied for a patent in Germany and Austria, and sold it to Mr. Otto Shulz, one of the manufacturers of comb foundation on a great scale, in Germany. The German and Austrian bee-keepers will, of course, now see that the great benefit of manufacturing their own new comb foundation is thrown upon the shoulders of Mr. Shulz, and every one will pay the money he asks. We shall have only standard comb foundation of the new comb, as no one will be induced to make his own foundation, as he has no right to use it. I do not like patents in bee-matters. And now the secret: The new comb foundation is *one-sided;* has prolonged cells; one side of a frame is closed with a tin sheet, covered with wax on the inside, worked in foundation. The bees work out the cells to double the length of the brood-cells, and fill them with honey only. Many of the readers of GLEANINGS have seen one-sided combs with prolonged cells, and full of honey, in the old skeps, or box-hives, and many have had combs with prolonged cells on both sides, filled only with honey. I for my part do not doubt that a comb of such qualities as Mr. Koerbs claimed for his would be of great value to every bee-keeper, if he only understands how to use it in the right way. Let us try the matter, and find this right way. C. J. H. GRAVENHORST.

Wilsnack, Prussia, Germany.

Dear friend, we are greatly obliged to you for your kind letter; and we feel proud to be able to place any sort of a letter, from so distinguished a man as yourself, before our readers. I presume you are aware that father Quinby made combs with a sheet of tin in the center; but these combs were used by the bees for rearing brood just as well as any. I do not see what should prevent the bees from cutting down these extra-deep cells made by Mr. Koerbs, so that they can use them for brood-rearing. I do not believe the sheet of tin alone would prevent the bees from using them for pollen or brood; neither can I understand why the honey would come out of them any easier. If friend K. has succeeded in developing something heretofore unknown, I am sure a few thousand names of those who will pay can be secured; but we should want the guarantee of some good man like yourself that it is really all he claims for it. Are we to understand you that honey and wax are on only one side of the tin? It seems to me this would be a disadvantage to the bees in storing honey.

A RECONSIDERATION OF QUESTION NO. 41.

FARM WORK VERSUS WORK IN THE APIARY, AS CONSIDERED BY MRS. CHADDOCK.

I NEVER was more astonished than when I read the answers to Query 41. How can anybody think bee-keeping easier than farming? Of course, farming in Illinois is not the same as it is among the stones and stumps in some other States. But how can anybody think bending over and lifting bee-hives easier than riding on a sulky plow, driving a mower or a self-binder, running a disk-harrow, or riding on a sulky hay-rake? Nearly every thing that we raise is planted by machinery; and I do not consider holding two leather straps, and pulling them "gee" and "haw" very hard work. I can do it week in and week out, and not feel worn out; but as soon as I go to lifting bees I get stiff and sore, and am obliged to go to bed.

Two years ago I gathered corn (i. e., husked it from the standing stalk, and threw it into a wagon) for six weeks, and I enjoyed it (I did none of the unloading); and last summer, when our boys got on a strike, I helped with the hay, but not in a very fierce way. Then after harvest, when the days were long and hot, and every thing seemed as if it must burn up, and the boys had been hauling out manure for four weeks, I went out every time they came in with the empty wagon and helped fill it. I like to work, but I have preferences, and I know of a hundred things that I would rather do than fork up manure; but the boys were going to strike again, and I knew what a strike meant. Mr. Chaddock was sick in bed. The boys declared that they would run away if they had to haul any more of that old manure; they said there was no end to it; that there never had been, and there never would be. Now, I understand farm work, and I know just what must be done, and I knew that the manure must go on the wheat-ground before the wheat was drilled in; and to encourage the boys, and show them that hauling manure was just as easy as any thing, I helped them load all the loads for a week or two. The boys brightened up immediately, and worked twice as fast when I was there. They had spent a good part of the time leaning on the forks before, and they declared up and down, and stuck to it, that the sun never shone as hot when I was out there as it did when I was not. I suppose I have had letters from a thousand women, asking me what work they had better engage in. In every instance, when they tell me they are widows with a poor little farm, I tell them to stick to the poor little farm and make it a rich little farm; but I have never yet advised a woman to keep bees, because I think it is too hard work for women. I know there is money in bees where one is in a good situation, but there is nothing light nor easy about it.

Vermont, Ill. MAHALA B. CHADDOCK.

My good friend, you have much to thank God for. The secret of success in any kind of business is to be able at any minute to work side by side with your helpers. No wonder your boys did twice as much when their employer was working with them; and from what we know of you I should suppose you could make yourself agreeable if you tried hard, even to the boys who haul the manure. You are very fortunate, also, in having "no end" of manure. I should like to help on such a job as that myself, and I assure you that every wheelbarrow full would be scraped up and utilized if I were around.—Now, in regard to bee-hives: I feel quite certain you can have your apiary so arranged that the work need not be more laborious than "holding two leather straps," as you express it. What do you want to lift your bee-hives for, I should like to know? One reason why I like the chaff hive is, that they are intended to be planted in a certain spot and stay there. There is not any severe lifting, that I know of, until you come to taking off honey, and you surely can have small cases, say those holding 10 or 20 sections. If you do not like hard work, lift one at a time. Set the cases on to a light wheelbarrow, and have a good path from the apiary, among the hives, to the honey-house. Have a plank fixed so as to run right up the steps and into the house. When the honey is to be loaded you can place the same plank from the doorstep to the wagon, and run the wheelbarrow right into the wagon. If you arrange things in that way I don't believe it will be much greater work than taking care of horses and hanging up harnesses. That is what I most object to in farming with sulky plows, disk harrows, etc.—harnessing up and unharnessing the horses. I would a good deal rather take off honey and put it on a wheelbarrow.

A BRIGHTER PICTURE.

AND OUR GOOD FRIEND PROF. COOK FURNISHES IT.

IT is terrible to think that such pictures as Mrs. Chaddock gives of the horribly mistreated wife are from real life. May I send another, perhaps just as instructive, and certainly more pleasing? Years ago, as my wife and I drove from the College to Lansing to church each Sabbath, we regularly passed a lad hardly yet in his teens, and a still younger sister. Master W. always had his sister's hand, and his courteous demeanor to her, and loving attention, could not have been greater, even if he were her newly accepted lover.

More recently the same actions have been ever manifested, only they are now dignified by maturer manhood. The young gentleman is prominent in the Sabbath-school. Often the mother or sister would go home immediately after church, while he would remain to attend to his duties in the Sabbath-school. As he would bring the horse and carriage to the block and help his mother or his sister into the carriage, he would always raise his hat as he handed the lines and bade the mother or sister good-bye.

A few days ago we received this young man's wedding-card. One of our children read the young lady's name, and remarked: "She is a lucky one;" and I ask, is the child's philosophy not correct? Show me the young man who is ever kind, courteous, and thoughtful regarding his sister and mother, and I will show you the one who will make not only a good husband, but a good neighbor and a good citizen.

I heard a child ask its mother, a few days since, why she fell in love with her husband. Her answer was to the point. "I saw that he loved and reverenced his mother and sisters." I believe we can give our children no stronger, surer safeguard for life's journey than to bring them up to love and cherish each other and the mother. I would rather my boy would always be thoughtful of mother than to have him Crown Prince of Germany. A. J. COOK.

Agricultural College, Michigan.

Dear friend C., of all the many good things you have ever written and uttered, I can not now think of one you have written before so grand as your concluding thought. May God help us to second the thought in the deepest and most secret recesses of our hearts! And now will your good wife excuse me while I say, before closing, the boy who wouldn't be kind and thoughtful to such a mother as your boy happens to have, would be a sad specimen of a boy indeed? My good friend W. P. Root, who takes down these words of mine, adds that it is possible for a man to be both thoughtful of mother and even *Emperor* of Germany; and that, if he is correctly informed, the present incumbent of that office is both.

BEESWAX FLOATING IN WEST-INDIAN WATERS.

IS IT TRUE?

IN a very instructive article on "Ambergris," in the *Farmer's Advance*, I find the following: "It is related, that on one clear, calm afternoon, a number of years ago, the schooner Gage Phillips, of Provincetown, was drifting along on the whaling-grounds, when the man on the lookout in the crow's-nest hailed the deck as is customary when any thing is discovered on the water, and reported to the officer on deck that a small, peculiar-looking substance was floating off the port quarter, and said that it looked like beeswax, which is often found floating in those waters." I will give you the rest of it, if you wish; but what I want to know is, how comes it that beeswax is floating around loose in these West-Indian waters? Is the sun hot enough to melt it out of the combs as they hang on trees over the water? and is it then washed about from place to place? or do the natives heat the wax seven times over to purify it, and then when they find it is ruined throw it into the sea? or is the honey placed by the bees in crevices of the rocks, and does the heat melt out the wax and let it run to waste? Whoever knows any thing about this wax that goes floating about in lumps, in those

West-Indian waters, will please report to GLEANINGS. MAHALA B. CHADDOCK.

Vermont, Ill.

Mrs. C., I hope you will excuse me for saying it is not true, no matter who said so—that is, I don't believe that genuine beeswax is found floating on any waters, in any quantity, so as to make it profitable to gather it for commerce. There may be some kind of wax, and it may have some commercial value; but it can not be beeswax, from the nature of things; that is, it can not be "found floating around loose," etc.

HEADS OF GRAIN

FROM DIFFERENT FIELDS.

QUESTIONS FROM A BEGINNER; BEES ON SHARES; PREVENTION OF SWARMING.

I HAVE recently taken ten colonies of bees on shares. I take care of them and give half of the new swarms, return the old swarms, and give half of the honey, and furnish half of the hives and honey-boxes, and deliver their half of the honey to them.

1. Had I better buy the bees, providing I could get them for a fair price? The bees are hybrids, Italians crossed with the black bee. They want to sell. 2. What are such bees worth this time of year? 3. Will they make honey enough to pay for themselves, providing we have a fair season for making honey? 4. Which is the best way to prevent swarming more than once? Is it better to keep the queen-cells cut out, or kill the queens before swarming? 5. How often should they be looked over during the swarming season? 6. Is it best to clip the queen's wings to prevent swarms going to the woods? I should like to build up a colony of thirty or forty hives. 7. Is the so-called Simplicity hive a good general-purpose hive for wintering and summering use? M. MEACHAM.

North Monroeville, O., April 1, 1888.

1. I should not think of keeping bees on shares. If the other parties desire to sell out to you on reasonable terms, I would buy. 2. This time of year, hybrid colonies in good hives ought to be worth $5.00. 3. It is a difficult matter to say whether the bees purchased would pay the expense the first year or not. They might do so in a good season, with proper management. 4. The matter of prevention of after-swarms is a difficult one. In running for comb honey, when contraction is practiced you can not prevent it, though you may discourage it by cutting out the queen-cells. 5. During the swarming season the bees should be looked over as often as once a week. 6. There are about as good reasons for not clipping the queens as there are for it. Clipped queens, of course, can not abscond with their swarms, but they are liable to get lost floundering around in the grass. If an attendant is on hand, it is a great convenience; otherwise, it is liable to result in loss. 7. The Simplicity hive in northern localities is not suitable for wintering on summer stands. If you have no double-walled hives, the colonies should be carried into the cellar.

SHIPPING HONEY—A GOOD SUGGESTION.

The remarks on page 83 prompt me to write what I know on the subject. At first I thought every pound of comb honey must go by express. A party insisted on having some sent on a freight car, and I shipped 8 cases, nearly 200 lbs. A single section only was reported broken. Again I shipped 12 cases of 24 sections, each weighing 28 lbs. net, to the same party. It was late in November, and frosty. It had to go through St. Paul, to be there transferred to another road, and go in all some 200 miles. It was received all right, not one section broken. I have yet to hear of any lot "badly smashed and honey leaking." A little of Josh Billings' "hoss sense" is very good to have in boxing up and marking honey to ship. One point is, to have the sections immovable; and in directing, some device to make it plain how you want the box placed on the car. I make a line across the top near one end, which line will cross the sections, and write under the line

Place this line crosswise of the car.

A case of honey so placed—that is, the ends of the sections to the ends of the car, will stand the ordinary bunting of the car without damage; but if the sides of the combs were placed to the ends of the car, the honey might be badly smashed, and the shipper would lay the damage all to the railroad hands. J. A. KING.

Mankato, Minn., March, 1888.

We are very glad, friend K., that you have had no experience with badly mashed and leaking honey. Your suggestion is a good one.

DRONES FROM UNFERTILE QUEENS; THE VARIOUS RACES OF BEES COMPARED.

1. It is generally conceded, I believe, that, if a queen goes 25 days without being fertilized, she probably will not be, and that all her bees will be drones. Are such drones (from an unfertilized queen) capable of fertilizing queens?

2. Are the German, or brown bees the same as our common black bees?

3. Are the Carniolans and the Italians the same?

4. Are the Holy-Land and Syrians the same? I have heard such claims as the above made by men who claim to be posted; and being only a beginner I want to know the truth of it.

5. How many different kinds of bees are there?

6. Please give the order of value, as considered by the majority of bee-keepers, in which the different kinds are considered; in other words, the best bees, second best, etc. I suppose, of course, the Italians are first; which is second—the Carniolans or Cyprians?

7. Tell us which you consider the best honey-plant for your locality. T. K. MASSIE.

Concord Church, W. Va., April 9, 1888.

1. We have no evidence that such drones as you mention are not capable of fertilizing queens. On the other hand, we have had two or three reports given in our back volumes, to the effect that they are of some service. Most bee-keepers, however, prefer drones reared from a fertile queen. 2. The German bees are considered to be the same as the brown, or black bee. There is, however, a little difference between the two latter. The brown bees are a little larger, and of a

brownish color. The black bees, in distinction from the others, are smaller and quite black. 3. Carniolans and the Italians are not the same. The former have white fuzz-rings and steel-blue black bands. The Italians—well, you know, or ought to know, what they look like. Both are a very gentle race of bees—the Carniolans, it is said, being a trifle larger. With what experience we have had with one colony in our apiary, we should think they were. Mr. Cheshire, in his book, "Bees and Bee-Keeping," gives some measurements in proof of this. 4. We believe there is a slight difference between the Holy-Lands and Syrians; but what that difference is, very few of us Yankees can determine. The native home of the two races is not more than 100 miles apart. 5. There are six or seven different races of bees. 6. It is a hard matter to answer this question, for there is no one man who has had experience with all of them; and if he had, his order of arrangement would probably not agree with the graded valuation of some one else. Most bee-keepers agree, however, that the Italians, for general purposes, are the best. Other races have their peculiar merits. For instance, the Eastern races, the Holy-Lands and Cyprians, are characterized by being very prolific, more especially the former. Both are more vindictive than the ordinary Italians. The Cyprians have left a good record as honey-gatherers. Scarcely any one, now, however, sounds the praises of either one of these races of bees pure; and we don't know of any one who advertises them at present. Again, the Carniolans are said to be gentler than the Italians, though we can not distinguish any particular difference in this respect. They are given to swarming much more than the Italians. It is said, and our experience goes to substantiate it, that they secrete very little propolis. This latter trait is quite desirable indeed. 7. The best honey-plant for this locality is clover. In some respects, basswood (or linden, as our friend Mason would have it) is superior.

A PECULIAR AFFECTION.

Is there any foundation in fact for the suspicion which I have sometimes had, that a person's eyes may be affected from working over a colony of bees? My experience is this: On several occasions after being engaged in handling my bees, my eyes have become very much inflamed; the eyelids become puffed like sacks of water, and the sensation felt is a painful itching and burning, and this condition lasts from two to three days. This has occurred when I have not been stung in any part of my body. I have been keeping bees five or six years, and am accustomed to handling them as much as is needful, and, of course, get my due proportion of stings. But a considerable number of stings seems to be a trivial matter in my case, and the effects pass off within twenty-four hours. I can not charge this eye affection to the bees from my present knowledge, as I work over them so many times without this result. But I do not now remember of ever having had the trouble except directly after handling them. J. F. PARKER.

Philadelphia, Penn., Apr. 9, 1888.

Friend P., other bee-keepers besides yourself have at different times described similar affections, which they attributed to the influence of the poison from the bees. There may be something in it. I am inclined to think, however, that the bees are oftentimes blamed when they have nothing to do with it. Even so wise and learned a man as father Langstroth at one time got a notion that being even near a bee-hive affected him unpleasantly. He afterward, however, practiced handling bees right along every day, without any bad sensations at all; and I believe he was forced to conclude that it was a good deal the effect of imagination; that is, he imagined the bees were the cause of the peculiar sensations, when they had nothing to do with it. Mr. Cowan, in a recent article in the *B. B. J.*, suggests that these symptoms are so nearly identical with hay fever that they may have a common origin; namely, the influence of the pollen of grasses and flowers at certain seasons of the year.

SOME EXPERIENCE IN CLIPPING QUEENS' WINGS.

Last spring I commenced with 25 colonies of bees; and as I wished to experiment somewhat I clipped the wings of 12 queens. The first that swarmed had a queen with clipped wings. I found her before the hive, caged her, and hived the bees all right. The second I could not find at all, neither in the hive nor outside. In vain I looked for that ball of bees clinging to the queen. The third swarm clustered on a small tree. I hived it, and in about ten minutes the bees had all returned to the old hive. In vain I searched for the queen, and circumstances in the hive afterward showed that she was lost. I had seven natural swarms. Six had queens with clipped wings. Three of these I lost. I was on hand every time before the bees had all left the hive, and I have the ground strewn with sawdust. Now, what has become of my queens? Do you think I had not clipped their wings sufficiently so that they could fly a little? or what was the matter? If I should not lose queens by it I should prefer clipping their wings; but with my last summer's experience it is rather discouraging.

IS IT ADVISABLE TO CONTRACT THE ENTRANCE TEMPORARILY OF A COLONY IN VERY COLD SPELLS OF WEATHER?

Has it been tried already, closing the entrance entirely in extremely cold weather? I have at present a few weak colonies, and I have closed the entrance to their hives with a rag, to try how it would work, as we have a cold spell here at present. I have my bees all in tenement hives, double walls, packed with chaff, the space between walls being from 3 to 4 inches of the lower story.

Nappanee, Ind., Feb. 28, 1888. L. A. RESSLER.

Friend R., your experience in clipping queens has been much like ours, and that is why we have of late discontinued it. We would rather manage a swarm with a flying queen than one which can not fly. Your queens probably hopped off in the weeds and grass, and were lost. It might answer to cork up the entrances when it is very cold, and open them when it gets warm, if one had nothing to do but to chase around to the hives with every change of the weather. D. A. Jones once recommended something of the kind; but I think he departed a little from his ordinary good judgment when he went into that scheme. Here in Ohio the weather changes almost every two hours, especially in the spring; but as it is, we have had very much better success where the entrances were left all winter, open full width, than where they were nearly closed up, as was for a time so strongly recommended.

CLOVER FOR STOCK, ETC.

I know of no other person whose information I would rely upon in preference to yours on the following questions:

Is there such a thing as white-clover seed in the market? if so, where can it be found? What does it cost per lb.? Will clover grow in pasture lands where there is some shade, in Ohio? Will clover produce honey if it grows in the shade? Is it not good for stock to graze upon? How much buckwheat do you put on one acre of good land? I should like to try the white clover and buckwheat here in Texas. J. H. RODERICK.

Dodd City, Tex., April 7, 1888.

Yes, sir, you will see white-clover seed advertised in every issue of our price list, which see. Clover is sometimes raised in an orchard, especially where the trees are small. Where the trees are large, it doesn't amount to much, for the trees take the strength from the ground, and the shade is also a detriment. The smaller the trees, the more honey the clover will produce; but with very large trees you would get very little clover and very little honey. White clover is proverbial for its goodness for stock, and it has been said that the honey contained in the blossoms helps to make sweet milk. No doubt this is true. You will see by our price list we usually sow about three pecks of buckwheat per acre. Half a bushel is a great plenty, however, of the new Japanese, as it branches out so much.

CARRYING OUT BROOD AND YOUNG BEES.

My bees yesterday were engaged in throwing out brood and young bees. Some of these were dead, but many were still alive at dark, but were helpless. J. T. GAINES.

Crescent Hill, Ky., March 27, 1888.

The brood which you say your bees were carrying out was evidently that which was chilled during the snap of cold weather. It not unfrequently happens early in the spring, when brood-rearing has progressed to any extent in the hive, that a spell of cold weather will come, causing the bees to contract to their winter-quarter's nest, leaving the brood high and dry, as it were. This brood, of course, dies; and as soon as warm weather comes again, the bees carry it out and deposit it at the entrances, as you saw. If you had examined closely the young bees you would doubtless have found them defective in wings or something else.

THE OPEN-SIDE SECTIONS.

Much is being said about four-side openings in sections. Theoretically there is much to support it. There is no question about the free intercommunication between all parts of the super being an advantage if it can be secured without too much cost. As the size of sections has been diminished, it has been a mooted question whether it did not impair the production of honey. That it did do this is manifested by the efforts made to dispense with separators and to invent separators which by perforation or by open meshes secured free intercommunication. The claims of those opposed to the non-use of separators are largely based upon this idea.

The four-side openings for sections have not been generally tried, nor can they be, by those who use separators, without special provision in the construction of the latter, simply because the openings in each section are but half bee-space, and the separator comes flush to the section.

Charlottesville, Va., Mar. 3, 1888. J. W. PORTER.

The points you make are good ones, friend P. Those who have been working without separators can try the open-side sections, without any trouble. But very likely the greatest benefit from the open-side sections will be where separators *are* used. During the present season we presume we shall have plenty of carefully conducted experiments in reference to this matter.

SPRING DWINDLING, AND WHAT CAN BE DONE FOR IT.

I put up 11 colonies last fall—7 in chaff hives, 4 in American — all on summer stands. I have lost several in American hives, but never in a chaff hive until this winter. The bees were flying during warm days the same as the rest, and as strong, until Friday last, when I noticed they were not flying. I thought immediately there was something wrong, as it was one of my strongest colonies. To my surprise I found the bottom of the hive so thickly covered with dead bees that it was impossible for them to get out. They were moist, so I cleaned them away. I found the colony strong, yet about one-half of them I should judge were dead. They had plenty of natural stores, both capped and uncapped. I did not find the queen with the dead bees. Saturday I noticed the rest were flying, and in the hive a dozen or so of the weak and sickly-looking bees were crawling about the entrance. What is wrong with this colony? and what is the remedy? I noticed last fall that the cappings were all of a very blue color, but still the rest in the same apiary are all right.

I lost one colony last winter entirely with exactly the same symptoms as this, but in an American hive, so I should like to prevent this in the future if I can. Would it not be a good plan to have a perforated tin slide at the entrance to prevent spring dwindling? S. R. BRINER.

North Springfield, O., Mar. 12, 1888.

Friend B., your bees seem to have the real genuine orthodox spring dwindling; but I do not believe the honey with blue cappings has any thing to do with it. This is very often the case with stores that winter outside of the cluster of bees. Some years ago myself and others felt a good deal troubled about the result; but by careful observation we are satisfied the honey is just as good as any. The blue color seems to be occasioned by a sort of mold that covers the capping when the hive contains moisture, or is exposed to dampness, or to a long spell of damp weather. Fastening your bees in the hives at such times will only aggravate matters. A warm sunshiny day that permits them to fly is the only remedy. Years ago, in our back volumes a cold-frame was recommended for giving the bees a flight in the sunshine, when the weather did not admit of it in the open air. This seemed to answer the purpose; but it was so much machinery I believe most of the friends decided to wait for a warm sunshiny day. Leaving the entrances full width, so that those bees that accumulate on the bottom-board may be carried out, is an advantage; for every time we stop the entrances, or cover the bottom so as to stop the circulation of air, it leaves matters in a worse state. To prevent such clogging-up of the entrances, a space under the combs, giving additional room during winter time, has been recommended, say 1½ or 2 inches under the combs. This can be secured by raising the frames the required distance. An opening in the bottom of the hive, say 6 inches square, covered by coarse wire cloth, also makes a pretty sure thing of air from below. Making the entrances large, and having the colonies strong, will, however, usually be all that is required.

HOW TO GET BEES OUT OF AN OAK-TRUNK.

I should like to inquire as to how I could take out a swarm of bees which has taken up its quarters in a white-oak trunk, the butt of which is hollow, and I can see lots of comb from there. I can get the stuff out, but how to keep the bees in good temper is the question. I saw your advertisement in the *Farm Journal*, and, feeling interested in honey, I took the liberty to write at this length. One more thing: Last May a large swarm came past me while I was hoeing corn. The air seemed filled with their buzz. I collared the whole swarm, a bushel, by tapping on my hoe, but they all escaped me, and I located them in this tree, half a mile up the lake. How's that for a green one? N. L. TOBY.

Sandwich, Mass., Mar., 1888.

It is not an easy matter to get bees out of the trunk of an oak-tree. The plan of procedure which we would recommend would be about as follows: Provide yourself with a veil and smoker. First blow a small quantity of smoke in the hollow, not too much, but just enough to quiet the bees, and then with a sharp ax cut a hole large enough to get at the bees, using smoke occasionally to keep them quieted down should they show any disposition to sting. Ordinarily bees are quiet and little disposed to make an attack when being taken from a tree. If you know of some old bee-hunter, perhaps you had better secure his services to do the job for you. We would recommend you to the subject of "Bee-hunting," in our "A B C of Bee Culture."

FROM VERMONT.

Friend Root:—As it is very seldom that an item from Vermont appears in your journal, I take the liberty to pen a few words that the readers of GLEANINGS may know that Vermont still has a few active bee-keepers. Though as a rule we are silent workers, yet we are always interested in what others have to say regarding our chosen pursuit. We are having a severe winter here, so far as regards cold weather and lots of snow. Bees have had only a partial flight since November; but as our bees on their summer stands have been well protected by the snow, we feel quite sure they will come out all right in the spring. I believe my bees are wintering well, as I notice the few dead bees at the entrance are small and dried up, indicating that the colonies are in a healthy condition.

Bristol, Vt., March 20, 1888. A. E. MANUM.

SMOKER FUEL; ROTTEN WOOD SOAKED IN TOBACCO JUICE.

I have tried several kinds of smoke for bees, and I like this far the best. Take punkey rotten wood (apple is the best), break it up the size you wish to put into your smoker. Into a kettle put some tobacco, also some of the wood, and water enough to cover it. Let it boil, then take it out and dry it. It is handy, cheap, and will subdue the most vicious bees. Old cotton rags soaked in tobacco-juice, and dried, are good. R. N. LEACH.

Humphrey, Neb.

Friend L., tobacco or tobacco-juice is the agent in repelling insects that trouble us in our garden work, and we have for years been aware that tobacco-smoke is more disagreeable to bees than the smoke of rotten wood only. In fact, if strong enough it will stupefy them. I believe the general decision has been that we do not need any thing so powerful as tobacco.

ARE COMBS ON WHICH THE BEES STARVED, FIT FOR FUTURE USE?

I take the liberty of asking your advice as to whether it is best to use comb on which the bees have starved to death this winter, that was made last summer, or not. My bees did not do very well last season, on account of its being so dry. They filled their hives with comb, but did not with honey, and a good many starved. The combs are, some of them, nice, and some smell a little sour; and I don't know whether to use them or not.

Windsor, O., Mar. 12, 1888. C. SARGENT.

To be sure, the combs on which the bees starved are good, and they will be just as serviceable as ever. If some of these are a little musty or sour, I would not give them to the bees until late in the spring. See ABC.

WHERE IS THE BEST PLACE FOR BEES?

As you have reports from different States and places I should like your opinion as to where the best place is to raise bees and honey. What of South Carolina? or have you any reports from here? Some say South Carolina is too poor for bees. I think it will do, but I think there are much better places. Is not California or Wisconsin among the best? We have but little report to make, though we have but few colonies. SAM'L O. EADDY.

Johnsonville, S. C., March 14, 1888.

Friend E., it is a pretty hard matter to say where is the best place to raise bees and honey. Larger results have been achieved in California than anywhere else; but the market is low, and the transportation to eastern cities expensive. Aside from California, we may say that Wisconsin, Michigan, and York State produce large quantities of very superior quality of clover and basswood honey. Florida has given us some large reports, but does not seem to hold out year after year, even as well as California does. Perhaps some of our commission men in our large cities could tell us what States excel in quality and quantity.

THE COMBINED SHIPPING AND HONEY CRATE.

I want to know more about the combined shipping and honey crate that you describe on page 19 of your catalogue. Is it intended to go inside of the 1½-story S. hive? It seems to me that the bees would seal it to the honey-board or frames below until it would be impossible to get the sections out or the crate off the hive. My hives are 1½-story Simplicity, with the sections in one-half-depth frames; but I don't like them. What would you advise me to use? T. J. FORD.

Morgan, Texas, March 14, 1888.

Yes, the combined crate is designed to be used inside of the half-story cover. It has just the disadvantage you mention, and we always recommend our T super with our honey-board as being cheaper and more easily managed. The combined crate can not be tiered up inside the Simplicity hive. The reason the word "combined" is attached to its name is because it is used by some, both as a hive-crate and a shipping and retailing case. Usually it is not advisable to retail from the same crate in which the honey has been secured.

THE GERMS OF FOUL BROOD IN THE DROPPINGS OF BEES; A CAREFULLY CONDUCTED EXPERIMENT.

I am sure that the germs of foul brood are contained in the honey, and I base my assertion on the following: I had some colonies infected with foul brood, and determined to experiment. I therefore collected about two grains of the droppings of some of the bees from the diseased hives, put them in syrup, and fed it to a healthy colony that I had purchased, and left ten miles from my own bees. It is unnecessary to say, that the bees from the colony so fed were not allowed to fly, except under cover, where there was no means for them to escape. In just 13 days the brood began to show unmistakable signs of foul brood, and in 4 weeks the colony was in a very bad condition of foul brood. They were fed only about ½ pint of the infected syrup. This shows the potency of the fungus (?) which produces foul brood.

Montrose, N. Y. J. S. CUMMING.

Your experiment is a valuable one, friend C., and it seems to be conclusive; but we can not help pitying the poor bees, even if it is necessary that they should lose their lives in the "interests of science."

ANXIOUS TO DO SOMETHING TO EARN MONEY.

I am a farmer's wife, anxious to do something to earn some money. I have thought of keeping bees, but am entirely ignorant of their culture or care. If I go into the business, I wish to be entirely independent of masculine aid, and wish to make it a success. What is your advice?

MRS. S. D. FORD.

Romford, Conn., Mar. 2, 1888.

If I understand you, my good friend, you have not, as yet, much capital to put into the business. As you are situated, I would advise you to purchase two swarms of bees, not more, of somebody in your vicinity; then get a bee-book. If you are going to follow my instructions, perhaps you had better get the A B C book. Don't buy any thing more until you get acquainted with your bees, and acquainted with your book; and I would not purchase very much until the two swarms of bees have furnished the money wherewith to make the purchases. If you go slow and sure in that way, the masculine element in your vicinity won't have a chance to laugh, and say, "I told you so!"

WHEN AND HOW TO STIMULATE; COVERING FOR FRAMES, ETC.

1. I should like to have as many young swarms of bees as possible, and also prefer early swarming. How shall I get them quite early, say in June? Would not feeding do this? When shall I begin to feed, and how much and how often?

2. Would not some porous and coarse material, such as grain-bags, cut to suit, be best to lay over frames and under the packing over bees when in winter quarters? I think, if bees would not cut through, this would soak or inhale all moisture from bees, which gum or oil cloth would not.

3. Has it yet been known that bees would smother or die when drifted entirely over with snow?

4. What was the cause of a colony of bees dying during winter? They were all right in the fall. In the spring I found them dead in the bottom of the hive, mixed with what looked to be a handful of yellow corn meal, with an odor coming from it. The hive had about 20 lbs. of honey in it yet.

W. E. DOWLING.

Drover's Home, Pa., Apr. 5, 1888.

1. You can start brood-rearing by feeding about ½ pound of sugar syrup daily. You can begin now, if necessary.

2. You can use old grain-sacks or burlap for covering the frames. We prefer enameled sheets, as given in our price list, for summer use, for the bees are less liable to gnaw holes in it. In winter we prefer burlap.

3. As this question is so fully answered on page 138 of the Feb. 15th issue, in the "Question-Box" department, we would refer you to that place. Most bee-keepers are of the opinion that the snow does no harm.

4. The bees you speak of as being dead in the bottom of the hive, doubtless died from dysentery. Such bees often look very much as you describe.

GROWING VEGETABLES IN FLORIDA.

Our bees are doing very well. I have taken some honey from the orange-blossom; very fair, thick honey; comb white, but rather heavy; not so crisp and tender as white clover. I have had several swarms. My location is not the best for honey, it being high pine lands. Vegetable-growing is going to be a greater industry in Florida than the orange. There is being shipped daily now from our station two and some days three car-loads of cabbages. Prices paid at depot, spot cash, $2.25 per barrel, or crate of same size. Some tomatoes are shipped from here. There are several thousand acres of them within ten miles. New potatoes are coming in some, and will be shipped soon. Beans are plentiful, and peas are about all shipped. Prices for peas have been good—from $4.00 to $6.00 per crate, net cash here. Florida is bound to win. Her resources are great; but time will develop them.

Altoona, Fla., March 28, 1888. JOHN CRAYCRAFT.

Friend C., when the cabbages you mention come to Medina, they bring about $4.50. Why do you say, "Peas are about all shipped"? Can't you raise peas all summer long, as we do here?

OUR QUESTION-BOX,

With Replies from our best Authorities on Bees.

All queries sent in for this department should be briefly stated, and free from any possible ambiguity. The question or questions should be written upon a separate slip of paper, and marked, "For Our Question-Box."

QUESTION NO. 49.—*Do you prefer the entrance at the end of the frame? Why?*

No. GEO. GRIMM.

I do. It facilitates the travel of the bee. MRS. L. HARRISON.

No. I shouldn't expect it to make any practical difference. P. H. ELWOOD.

I use them so, but hardly know why, except that it was the way I started. G. M. DOOLITTLE.

Yes. Because every part of the hive is more accessible from the entrance. H. R. BOARDMAN.

I never observed that it made any difference, so far as the working of the bees is concerned. PAUL L. VIALLON.

Theoretically, no. I have never tried frames crosswise of the entrance, but shall the coming season. DR. A. B. MASON.

It doesn't make any difference whether at the sides or ends. I know, for half of our hives for years now have been one way and half the other, and no difference in results is manifest. A. J. COOK.

Yes. Well, perhaps because it's the fashion, and I never tried any other way. At least, that's the principal reason. I suppose it allows a better chance for ventilation, and for ready access to all parts of the hive. C. C. MILLER.

Yes. For one particular reason. The hive should always be tipped toward the entrance, to allow water to run out of and not into the hive, as well as for other reasons, and the combs will not be built true in the frames, if they are tipped sidewise. O. O. POPPLETON.

I do. To assist the bees in getting out with a worm when they get one by the collar, the hive should be tilted forward; and this will not do when the combs run crosswise—or is it because I'm a Yankee, and the "stupid Britishers" all use side entrances? E. E. HASTY.

We like to have the bottom-board slope slightly toward the entrance, then rain or melting snow will run out instead of in. If a hive does not stand level, then it ought to slant lengthwise of the frames, otherwise they do not hang square with the hive. W. Z. HUTCHINSON.

We have over 100 colonies in quadruple L. hives. Half of those colonies go in at the ends of frames; the other half, the entrance is at the side of the combs. I don't see any difference in working the bees, or in the amount of honey gathered, or in wintering the bees. E. FRANCE.

Yes; because I can tip the hive, making the entrance lowest, aiding the bees in keeping the hive clean. Besides, it is more natural for them to climb up than down or on the level. If the frames run crosswise, you can't tip the hive toward the entrance without throwing the frame out of the desirable vertical position. JAMES HEDDON.

This is much debated in Europe, because the Berlepsch hive has the entrance on the side. We prefer the Langstroth way, because it gives the bees and the air access to all the combs readily. Besides, we can slant the hive forward, for the escape of moisture, debris, etc., without causing the frames to hang out of the perpendicular line. DADANT & SON.

Yes. The bees have more ready access to all the combs as they enter. The brood-nest can be more desirably contracted with the combs in this position. Ventilation with a proper entrance may be made more thorough. It is also often very desirable to have the hive stand so that the front is lowest, without throwing the combs out of their perpendicular position. L. C. ROOT.

The Dzierzon method favors the so-called "warm-frame arrangement;" i. e., the brood-frames hanging crosswise of the entrance. I prefer the so-called "cold-frame arrangement;" that is, the entrance at the ends of the brood-frames, because any part of the brood-chamber is of easier access to the bees. Besides, practical results have proved Langstroth's arrangement superior to Dzierzon's. CHAS F. MUTH.

Well, friends, this is pretty good. We can rest satisfied that it does not make any difference about the amount of honey stored, whether the bees go into the hives sidewise or endwise; but so far as aiding the bees in house-cleaning, expelling intruders, etc., is concerned, the endwise doorway offers the best facilities. It seems, also, as if an entrance the full width of the hive, with the combs running endwise, must offer the bees better facilities for perfect ventilation.

QUESTION NO. 50.—*1. What is the best method of removing bees from sections? 2. Which have you used with success?*

1. Don't know. 2. Drum on the super, and use smoke. DR. A. B. MASON.

It depends on the circumstances, number of sections, and time of the crop. DADANT & SON.

Smoke and shake will do the business, especially where wide frames are used. G. M. DOOLITTLE.

1. Smoke them down, and brush off any remaining, with a yucca brush. 2. Ditto. MRS. L. HARRISON.

Brush them off with a soft goose-feather, first shaking off with a quick jerk all that will drop. GEO. GRIMM.

Bee-tent. Dark box. Vehement shake, such as the experienced bee-keeper understands, and smoke. A. J. COOK.

My experience in raising section honey is too limited for me to have any "best" method of doing this work. O. O. POPPLETON.

I presume this question refers mainly to super-cases, which I do not use. I use wide frames; and the manipulation is to take them out rapidly, and dislodge the bees with a vigorous shake. E. E. HASTY.

Drive the most of the bees out with smoke, then carry the case of sections to a room having a window or windows so arranged that the bees can readily pass out, and those outside can not get in. W. Z. HUTCHINSON.

Bees can be shaken out of their section boxes almost completely. The few remaining bees will find their exit and their way home when the boxes are placed in a dark room with the windows lowered. **CHAS. F. MUTH.**

With our two-pound sections we shake the bees from each one separately. We were told that we could shake them out of our one-pound section case (used first last season), but our bees don't shake well; in fact, the shaking affected us more than it did the bees. We may have to resort to drumming them out, as with the old glass boxes. **P. H. ELWOOD.**

1. I smoke on the top until the majority of the bees go down, then take the cases into a rather dark room with one opening. By evening all the bees will have left the sections, and gathered on the opening, etc. There are several other methods, but I prefer this one, especially when using two or more tiers of sections, as it doesn't leave the bees without sections to work in until you can return whatever sections are not quite finished. **PAUL L. VIALLON.**

This department is too limited to do justice to the subject. It depends somewhat on the kind of fixtures used to hold the sections. I have used bee-escapes successfully, on both cases and hives. I practice a method not in use by any one else that I know of; in which I shake the bees off the sections in wide frames into a hopper, and return the bees to the hive. **H. R. BOARDMAN.**

1. Remove the cover of the hive, smoke the bees between the sections, lean over, and blow with your mouth as hard as possible, when the bees will make a stampede downward. Before a reaction, snap off the surplus case, give it a few smart, trembling jerks, then set it in a screen-house or dark room with one light hole for the bees to go out at, standing it on end so that the air will move through the space between the combs readily; soon the few remaining bees will all be gone, and others will not return if robbing is rife. 2. As above. **JAMES HEDDON.**

If I am handling sections singly, I shake and brush them off. If the whole case or rack is being handled, I smoke them at the top before removing them from the hive, when most of the bees will leave the boxes, and it may be removed and set upon its edge, on the alighting-board, and again smoked, when the bees will pass into the hive. In taking off large quantities of sections in haste, so that they are not entirely freed from bees before being carried in, I have practiced stacking them in a pile, and placing a nucleus box with a caged queen at the top, where the bees would all gather. **L. C. ROOT.**

I presume the above question was given with the view of finding out who had used bee-escapes, such as we have recently illustrated, for getting the bees out of the sections. It transpires, however, that only a few have used them. Friend Heddon seems to have had considerable experience in the matter, for he goes at it as if he had had practice in getting the bees from tons of honey.

QUESTION NO. 51.—*Does removing the queen, in the height of the honey-flow, stop or diminish the honey?*

I think not. **H. R. BOARDMAN.**

It diminishes work for the first eight days. **P. H. ELWOOD.**

It tends to check the storing of honey. **MRS. L. HARRISON.**

It generally diminishes the amount of surplus. **DR. A. B. MASON.**

It will not, as a rule, affect the disposition of the bees to store honey. **L. C. ROOT.**

I am convinced that such is the case, in a majority of the trials which I have made. **G. M. DOOLITTLE.**

No, not if they have the material within the hives to commence rearing more queens. **JAMES HEDDON.**

It will not stop or diminish the flow, for at least a few days; but it will stop breeding and diminish the bees, and the consequences will soon be apparent. **PAUL L. VIALLON.**

It certainly would not increase it, except in that it would lessen the amount of honey used in brood-rearing, and would release more bees for labor in the fields. **W. Z. HUTCHINSON.**

I have many a time so removed the queen, and I never noticed any difference. Still, there may have been a difference, and on the whole I prefer a queen in the hive. **C. C. MILLER.**

Sometimes it seems as though their ardor was dampened, and again it seems to have no effect. Generally the removal of the queen causes them to work less earnestly. **GEO. GRIMM.**

I have not experimented on this interesting point. I should expect that some colonies would stop almost entirely, and that other colonies would work almost as well as before. **E. E. HASTY.**

It does, in my estimation, check the production of comb honey. The check to the flow of extracted honey is less noticeable when the upper story has a full set of combs, and no building need be done. **CHAS. F. MUTH.**

Reason says no. But it always seemed to us that it diminished the result; at any rate, more honey is put in the brood-chamber than there would be otherwise, since the queen is no longer there to refill the cells with brood, and less of the made crop is available for the apiarist. **DADANT & SON.**

I have made but very few experiments in this line; but those few seemed to diminish rather than increase the amount of honey stored. There is a great difference in this respect in the different races of bees, and I prefer those that diminish brood-rearing of their own accord during the height of the honey-flow. **O. O. POPPLETON.**

Not in the least. Mrs. L. B. Baker, who had quite a phenomenal success as a bee-keeper, removed her queens every season as the harvest opened. She got a very great quantity of fine comb honey—probably more than though the queen had been left; but breeding ceased; and so if there was a basswood harvest, the bees were not prepared for it. **A. J. COOK.**

No, not with us. Take a strong colony of bees in the height of a honey-flow. Take away their queen, but leave them eggs or very young larvæ from which to raise a queen. They are then in a perfectly natural condition, and will gather honey just as fast as they would if they had a laying queen. In fact, they will gain in honey faster; as fast as the brood hatches, the cells will be filled with honey, instead of another egg being laid in the cell for the bees to feed. You may not get honey as fast in the sections, for the reason that the bees will put the honey in the brood-combs as fast as the brood hatches out. Remember, that a colony of bees with no laying queen should have a full hive of combs—no combs to be built in the brood-apartment.

E. FRANCE.

And here is a point where doctors disagree. I am sure, from my own experience, that, with some colonies, it puts quite a stop to the whole business of the hive; that is, if the queen is taken away when they have not made any preparations for swarming. We shall have to conclude, however, that, a great many times, it not only makes no difference, but increases the yield of honey. Prof. Cook, E. France, L. C. Root, and others, testify to the above.

NOTES AND QUERIES.

STIMULATIVE FEEDING.

DOES feeding in spring, for the purpose of stimulating the bees to rear brood, pay? Does it pay to feed in the fall for this purpose?

Peoria, O. R. L. CLEGG.

[We think it does pay to feed, for stimulative purposes, both in fall and spring. Of course, you do not want to feed in the fall, however, for stimulating, if the colony already is large, with abundance of young bees. Injudicious feeding may do more harm than good. As the subject is so broad, we think you had better consult the A B C book.]

THE JAPANESE BUCKWHEAT AWAY AHEAD.

The 2 ounces of Japanese buckwheat I got of you last year yielded at the rate of 140 to one. The silverhull in the same field yielded only 20 to one, and, if any thing, on better land. IRA BEACH.

Masonville, N. Y., March 30, 1888.

ABOUT THAT BOILED CORN.

In answer to your question to A. B. C., on page 259, in regard to corn, we do not cook it. Cut it off, put in brine, and, when wanted for use, soak it as you would salt fish. My folks still have it nice and good. A. W. SPRACKLEN.

Cowden, Ill., Apr. 6, 1888.

PEPPERMINT HONEY UNWHOLESOME.

I put 21 strong colonies into winter quarters with plenty of peppermint honey. Six are dead of dysentery, and the seventh is affected, but may pull through, as I gave them other honey on the 23d.

Comet, O., Feb. 27, 1888. B. B. MESSNER.

ONLY ONE HONEY-MERCHANT IN EVERY CITY.

I am a believer that there ought to be some competent person appointed in every city, to handle all the honey, instead of its being sent to all kinds of commission men. They know nothing about honey nor about handling it. All they want is to get their commission. WM. URIE.

Minneapolis, Minn., Mar. 15, 1888.

HOW TO CLARIFY WAX.

What is the best way to clarify beeswax? How do you do it? GEO. W. COOK.

Spring Hill, Kas.

[The best way to clarify beeswax is to allow it to stand in a melted condition for some time, in order to let the foreign matter settle to the bottom of the receptacle. When cool, scrape off the bottom of the cake of wax. The scrapings will be more or less accumulations of dirt and other foreign substances. It may be necessary to repeat the operation of melting once or twice in order to get it sufficiently clarified. The solar wax-extractor will perhaps do the work better than any thing else. It also gives the wax a good color.]

THE BEST TIME TO TRANSFER.

What time of the year is the best to drive bees from old hives to new ones? We have just seven colonies this spring to commence with. Part of them are in old rotten box gums that they had been in for years before we got them.

Afton, Ia., Mar. 19, 1888. MRS. J. E. TURNER.

[The best time to transfer is during apple-bloom in the spring; see "Transferring," in A B C.]

WIRING FOUNDATION WITH THE GIVEN PRESS.

I should like to inquire of those who use the Given press, if it is possible to press foundation in wired frames with a single sheet. I can make splendid ones with a sheet on each side of the wires; but with one the wire cuts through.

Birdsall, N. Y. O. E. BURDEN.

[We should like to have Dr. Mason answer the above, although we feel quite sure, from what has been said, that one single sheet of wax is all that is used.]

WHEN AND HOW TO MOVE BEES.

I have four swarms that I want to move about ten miles; which would be the best way to move them? Could I take them in a light wagon with safety? At what time in April or May would you advise me to move them? My bees have wintered well, and are all alive yet, though there is time enough yet for them to die. W. H. JEATER.

Verdun, Ont., Can., Apr. 5, 1888.

[You can move your bees any time you wish to now. Of course, it would be desirable to put the colonies on a spring wagon if you have one. There is no trouble at all when a colony is moved ten miles, or even beyond one and one-half miles. See "Moving Bees," in the A B C book.]

CAN QUEENS CARRY FOUL BROOD?

Can foul brood be carried, or is it likely to be carried, into new localities by purchasing queens of those having it among their bees? J. LANGLEY.

Widnoon, Pa.

[It is generally considered that the queen, when taken from a diseased colony, will not transmit it to a new colony to which she may be introduced. We have taken queens from foul-broody colonies at different times, and placed them in another portion of our apiary into a colony that was perfectly healthy. Those colonies so treated never became diseased. Mr. Frank Cheshire, of England, claims that queens may give the disease, and urges, as proof, that he has found the germs of foul brood in the spermatheca.]

QUEENS FROM SMALL CELLS.

I am starting queen-cells, preparatory to Italianizing my apiary, and I find that there is considerable difference in the size of cell-starters. Do you find in your experience in queen-rearing that difference in size of queen-cells makes any material difference in the value or productiveness of the fertilizing insect? I give the cell-building colony eggs two days old; or, in other words, eggs one day before they hatch, and allow them to hatch in cell-building colony. A. W. TUFTS.

Musson, La., March 21, 1888.

[We have produced good prolific queens from small cells, and then again we have secured rather inferior ones. We always prefer to raise queens from cells full size. We find that we generally get better queens from the latter than from the former.]

MYSELF AND MY NEIGHBORS.

If any of you lack wisdom, let him ask of God, that giveth to all men liberally, and upbraideth not; and it shall be given him.—JAMES 1:5.

I HAVE been greatly pained to find that I was so careless in my last talk that some of the friends got the impression I thought it was right and proper to get in grain on Sunday. I wish to correct this; and before going further, let me say I do not remember that I ever saw a case where I would get in grain on the Sabbath, or advise any one else to do so. In my illustration I mentioned the case where a small hurricane threw down trees and destroyed fences. I believe all will admit that, under such circumstances, it was proper to go to work and take care of the stock, etc. If this be so, then is it so very strange that some people might think *certain circumstances* would justify getting in grain on Sunday? Both cases have in view the saving of property. If you say in the former case it was right and proper, and in the latter case it was not, who shall draw the line? Suppose we take another illustration:

During a dry time, fences often take fire. Shall we put the fire out? I think most Christian people would say, "Yes, most certainly, if there is danger that fire shall run along the fences so as to burn buildings." But suppose the fences are so isolated that the fire can not communicate to any buildings; shall we carry water and put it out? or (as it is simply a loss of property) shall we let it burn? I think in such cases, as well as in many others, there will be little differences of opinion, even among good Christians. There need not be very *much* difference, however, especially if the Christian, before he decides, asks God to lead him. And now we come to the point of our text. I believe that we need to go to God constantly in prayer, asking him to enlighten us, and give us wisdom in the interpretation of nearly all the commands laid down in the Bible. If we do this, we shall, as a body of Christians, at least pretty nearly agree.

I once heard the question raised as to whether God ever told one man one thing and another man a different thing. An old gray-headed veteran in Christian service insisted pretty vehemently that God always answers the same thing to all his children. Some other good Christian people demurred at this; and I believe that even our pastor thought our old friend was taking singular ground. Several years have passed since then; but the longer I live, and the more I study humanity and God's providences, the more I think our old friend was at least pretty nearly right. If a number of Christian people were asking God what they ought to do in regard to going out on his day to carry water to put out fires, I think he would tell them very nearly the same thing. We all have opinions of our own, and we are all more or less stubborn, so that, without fully realizing it, we are liable to be biased by our convictions. I have had an experience of just that sort. Crowds of both godly and ungodly people were carrying water to stop a fire. I decided, or, if you choose, God seemed to tell me, that it was his wish that I should join in this throng and work as well as I was able. In a little time the fire was sufficiently subdued to be considered safe. There was no need of more than three or four remaining on the ground to watch it. At this time, conscience said very plainly to me that *Christian* people should go straight home; and during the work I also felt impressed that we should be careful about indulging in useless or idle words. I felt it would be wrong to sit down on the fence with the others and take a rest. A good many might feel encouraged to visit and use idle talk, on this holy day, just because one professing Christian was among them, to set the example.

Remember, dear friends, that, under such circumstances, the admonition laid upon us is, "Ye are the salt of the earth;" again, "Ye are the light of the world." We are not commanded to abstain from necessary work on the Sabbath, but only to "keep it holy." And Jesus said, while the matter was being discussed before him, "It is lawful to do well on the Sabbath day." Now, then, my friends, if you want my advice in the matter, I should say, it is very hard to lay down rules as to what should and what should not be done in the way of work on Sunday; but if we ask God to guide us, let us be sure that our own notions and prejudices, or, if you choose, our love of property, do not bias the dictates of our conscience in regard to this matter, and then I think we shall be led safely. If the matter is one where there may be much difference of opinion, get down on your knees and ask your heavenly Father to direct, and I am sure you will feel happy over the result.

The Christian should, above all others, make careful provision on the day before, against possible contingencies and emergencies. If there is fire that may possibly catch in the fences, put it out the night before. If there is grain that might be injured by sudden storm, get it in, even if you have to work after dark. If there is any prospect of a flood, don't leave any thing valuable on low ground. If, however, after having done all you can in these respects, a sudden flood should threaten the loss of a large amount of property, I am not sure it would be wrong to hitch up the team and move the property, especially if it could be done quickly; but from what experience I have had, however, in such cases, I very much dislike to do it. In fact, I do not feel happy and satisfied after having done so. I would not gather sap on Sunday. I would much rather sit up till 12 o'clock at night, in order to empty every bucket. Then I would get up at 12 o'clock on Monday morning, and empty them again when they are running over. I have done things of this kind, and I always feel happy in doing it. In fact, I really enjoy sitting up till 12 o'clock on Saturday night, and getting up a little after midnight on Monday morning, especially when I can feel that I am doing it for Christ's sake. The thought that my friends and my neighbors are watching me is also a pleasant thought in connection with the matter.

When I am doing my best to honor Christ, I love to be watched. Yes, I love to be criticised, for I know from past experience that, if we take all these criticisms to the Master, asking him to give us wisdom, as in the language of our text, to meet these criticisms, we shall not only be happy in meeting them, but good fruit will be borne as a consequence; therefore I for one am glad to have neighbors—not only neighbors who watch, but who speak right out when they think I am getting astray; so you see I can honestly thank the neighbors who have written to me in regard to this matter of Sunday observance.

Another neighbor criticises me pretty severely because I have again intimated that it may be a proper thing to shoot down the midnight assassin. He quotes a great number of Scripture texts. Now, I want to say to him and to all others who take the stand he does, that I should be glad to stand with them; and I do hope the time may soon come when we shall have made sufficient progress in intelligence and godliness, so it will be no longer necessary to take life. Our brother tells us what we ought *not* to do, but he gives us no remedy nor substitute for our present laws.

A few years ago our mails were being robbed; in fact, the letters from the readers of GLEANINGS were being stolen. The mischief was located in a neighboring town. A trusty man was appointed to sleep in the postoffice. During the night he heard a noise, and struck a match. As soon as the light of the match revealed to the burglar the presence of the watchman, the assassin drew a revolver and shot down the faithful government employe. He not only came to steal your hard-earned money and mine, but he provided himself with a murderous weapon to shoot down whoever should attempt to interfere, and he did shoot him. The wounded man lived just long enough to tell how he was injured. Suppose a policeman had come on the scene just at this time, would anybody say he did wrong for shooting the burglar? You may say he should have taken the man alive, and that our government should have imprisoned him for life, instead of hanging him. Well, this is just exactly what we would do; but suppose the policeman had come on the ground in time to save the life of the postoffice clerk by a timely shot; or suppose, if you choose, this burglar tried to run, and the policeman called on him to stop, and he would not. Should he not have crippled or killed him? Most assuredly; and I believe I could go down on my knees and thank God for having placed it in my power to kill a man under such circumstances—that is, when I can save the life of a good man by taking the life of a midnight assassin, I hope the spirit of Christ may strengthen my nerves and my arm to do my duty. We shall find all through the Old Testament, that God took life—yes, and by the wholesale, when it seemed best. Jesus, when he wept over Jerusalem, pronounced their doom; and history tells us that more than a million were murdered and put to death. God permitted this as a punishment; and Jesus foretold this punishment that would come upon them if they did not heed his words. Some may say that God has the right to take life, but that we have not; but I believe that God authorizes us to take life when thereby lives may be saved, as in the case of outlaws who *defy* the law.

Now, it seems to me that nothing that I have said can be construed into an encouragement of neighborhood quarrels; and most of the texts that have been quoted to me, I think refer to these. Anger and revenge should have no place in this matter of taking life because the *law* demands it. We should do every thing possible to save life. We should suffer injury and loss of property; in fact, we should "love our enemies," and "do good to those who hate us." We should also "resist not evil." But when these texts are applied in such a way as to say that the father of a family should, on his own premises, stand idly by while the assassin is taking the lives of his wife and children, I think we lose sight of reason and common sense. In our own town, just twenty-five years ago, a whole family was murdered, even to a helpless child in his little crib, that the midnight murderer might get hold of a few hundred dollars. So you see the cases I have given you are not imaginary ones.

Another brother complains because I make the matter of salvation too easy. He admits my argument of the thief on the cross, but says we have no proof that the thief went to heaven at all. Jesus only said, "This day shalt thou be with me in paradise," and nobody is able to prove that paradise is heaven. To which I would reply, dear brother, ought not any follower of Christ to be content and satisfied if he can be with Jesus, no matter *where* that place shall be?

What grace divine that he is mine,
And I shall be with him there.

Another friend also objects, something in the same line. He admits that the thief on the cross was pardoned fully and freely, and even with but a very small show of penitence, so far as outward words would indicate; but he says, in substance, this was a special case, and it was the Lord Jesus himself who saw fit to take him into the kingdom, without any ceremony or ordinance whatever. To which I reply, that no man, as I understand it, ever receives any penitent sinner. Christ Jesus, and he only, is the one who has power to forgive sins. It is true, it was Jesus himself, in his own person, who was present at the time; but, dear brothers and sisters, is not Christ Jesus present now, and just as ready now as he was when he spoke to the dying thief? I would by no means be understood as saying that baptism *can* or *should be* omitted; but I do think this matter should be taken as we take the observance of Sunday, as only *one* of the many things a Christian should attend to — not giving any one of these commands *undue* prominence.

A little way back I said, "I like to be criticised;" but when I wrote it I did not expect such a criticism as comes in the following letter:

Friend Root:—A few years ago you gave in GLEANINGS a little testimonial from an atheist in regard to his likings for GLEANINGS. Now, I had read GLEANINGS for some time previous to that, as well as ever since. I read it all and that is more than I can say of the dozen other papers I get. I had concluded that at last I found a real Christian without that universal compliment of bigotry, doing right because it was right; and when others did right, gave them credit for it because it was right, and not because they belonged to such or such a creed. Your writings and answers to correspondents were in such a very liberal spirit that I could not help but admire you, and your words certainly did me good. Your sentiments were so elevating that no one could read them and not be benefited, if he or she desired to make all of this life possible. But do you know, friend Root, that a change is slowly coming over you? that narrowness is creeping in at the corners, and the Apr. 1st number, page 248, your answer to Mrs. Chaddock caused this to be written. Such sentiments you have before expressed, but probably not quite as much to the point. Now, I can not find words in the English language to express my contempt for such a brute as Mrs. Chaddock describes; and when you want to unload him from Christianity and make it appear that the Christian religion will *prevent* men from becoming such fiends, I think you got twisted into one of your narrowest moods. You even went so far as to state that, were it not for the influence that Christianity exerts on *you, A. I. Root* might drive away and leave the wife and children the way the man (?) Mrs. Chaddock describes did. Now, Mr. Root, I think you are an honest and truthful man, and I would trust you to almost any extent in a business way; but, beg your pardon, I *can not believe that.* Do you know that our prisons and penitentiaries are filled with Christians? Who but Christians swing on the gallows? Do you know, Mr. Root, that, if I were to point out to you a few "heads" of families of my acquaintance, of the strongest Christian proclivities, I would point to persons who have very much of the fault that Mrs. Chaddock preaches about? Of course, they are not Christians as A. I. Root is a Christian; nevertheless, they are Christians. They are leaders in their churches; and as they claim to be Christians, what else will you call them? Do you know that the ministers of the Christian religion, as a class, break your seventh commandment oftener, by a large per cent, than any other class of people? If you don't believe it, I can prove it to your satisfaction, or you can prove it for yourself, if you look over our dailies for a while.

Now, to come back: Don't you think you did a wrong to a class of people who don't happen to be Christians, but happen to have faith in Mahomet or Budha or Brahma or Confucius or Mormon or Yaw-yah, or—none of 'em at all, but still are good, kind, and loving husbands and fathers, and wives and mothers?

The most prominent man in the U. S. as an orator happens to be an unbeliever is such isms as above named, and he raised a family that is an honor to any society, and he never spoke a cross word to any one of them. His name is Robert G. Ingersoll.

One of England's greatest Commoners happens to be not a Christian, also, and his enemies can not help but mention that he is a good husband and kind father. In such a strain I could fill page after page, but probably it would be of no value to you. You speak much of your neighbors. Now, I think that you, being a Christian, the other religions and non-religions are your neighbors; and when you try to load such things on your neighbors' shoulders, instead of trying to dispose of them in the proper way, you do your neighbors a big wrong.

One more word, friend Root: I am not one of those persons who think they know all. No, I think I know practically nothing, and am trying to learn every day, and gladly take lessons from such as A. I. Root used to be; but when bigotry takes hold of a person, I think he is not a good teacher for me, be he a Christian, a Jew, or a believer or an unbeliever. L. W. LIGHTY.

Mulberry, Pa., April 5, 1888.

I admit, dear friends, that the above is pretty severe, and no doubt more than one reader of GLEANINGS will feel mightily stirred within himself. Very likely we all need stirring up, and I am sure the above letter will do us good, if we take it in the right way. Our brother has expressed himself very strongly, it is true, but I presume there is at least a grain of truth in every point he makes. As I am getting to the end of my allotted space, perhaps we had all better let the matter drop where it is until our next issue. Meantime, let us all remember that if any of us feel in a fighting mood, there are probably enemies or sins within our own hearts that can be fought to much better advantage than to fight (even with words) one of our fellow-men. I want to say to the writer, however, that I thank him for his timely warning. I will try to take very great care that narrowness and bigotry shall not creep into my life, even "at the corners." I did not mean to reflect on any class of people; and if I did I humbly beg pardon. I know that a lack of charity is one of my most grievous and oft-besetting sins; but, dear brother L., if I reflected on the sects and denominations that you enumerate, haven't you reflected very severely indeed on a good many who think not as you do? I am glad to hear you say in your closing-up remarks that you feel as I do, that we know practically nothing. In view of this, shall we not both ask the Almighty, who created us, for more wisdom and more understanding? shall we not hold fast to the promise—

> If any of you lack wisdom, let him ask of God, who giveth to all men liberally, and upbraideth not?

REPORTS ENCOURAGING.

NO LOSS IN FRAME HIVES; BOX HIVES WINTERED POORLY.

I HAVE been looking over my bees to-day, and find them all alive and in good condition, with plenty of stores. I commenced the season of 1887 with one swarm of Italians, and now have three strong colonies. They were all out on summer stands, packed in chaff, and wintered without loss. I fed sugar last fall, and think that is one reason why they wintered so well. I noticed that one swarm of bees that were wintered almost wholly on sugar were bringing in pollen abundantly to-day. Bees in box hives in this locality have wintered very poorly. I am the only person in this place who has the movable-frame hive. **F. E. Brown.**

Brimfield, Mass., Apr. 16, 1888.

PACKED VERSUS UNPACKED COLONIES.

Colonies that were packed on summer stands came out in fine condition. About 95 per cent are alive yet in this neighborhood. Those that had no winter protection, about 60 per cent are dead. **Jacob Rannel.**

Sherwood, Defiance Co., O., Apr. 12, 1888.

LOST ONLY ONE.

Apple-trees are in blossom, and bees are in good shape; loss during winter, very light. I have lost only one out of 36. It was a 3-frame nucleus. They wintered in the yard on summer stands. Honey is in good demand now since the supply has been consumed. I like the idea of getting up apiarian statistics, and will gladly aid so far as I may be able, if necessary. **S. L. Greer.**

Disco, Tenn., April 3, 1888.

LOSS BUT 5%.

I put away 21 swarms last Nov. I put them in the cellar on the 21st, and took them out the last day of March, all healthy and strong, with the exception of one. Bees have wintered well in this locality. I do not think we have lost 5%, although we had the hardest winter I ever saw. It was as cold as 46 below zero; and I tell you, I don't want to see it any colder than that. The prospect is fair for a fair crop, but we shall get but little white clover, as we have had two years of drought, and it has almost killed the clover. **C. V. Main.**

Boscobel, Wis., Apr. 11, 1888.

ENCOURAGING.

Even to my surprise, my bees commenced to swarm on the 11th inst., which is nearly a month ahead of their usual habits. They are pure Italians in improved 8-frame "lawn" bee-hives. I find they are full of bees, brood, and new honey; and they have been just booming on the fruit-tree bloom for the past two weeks, and drones are flying lively.

I have just laid out and seeded with white clover a new apiary for over 100 colonies. Between each bench of three hives I have planted a small cedar, which they have already begun to utilize for swarming purposes. This season has opened with good prospects. **J. C. Frisbee.**

Suffolk, Va., Apr. 14, 1888.

130 WINTERED, WITHOUT THE LOSS OF ONE.

I have wintered 130 hives of bees without the loss of even one; 31 were outdoors, packed in chaff, 99 in the cellar. This is the third winter that I have not lost a swarm, when wintered in the cellar. My bee-cellar is a corner of the house-cellar, partitioned off with rough boards, and covered with heavy building-paper. It is perfectly tight—no ventilation anywhere. The room is 10 x 20, and will hold 130 hives. I kept the temperature from 45 to 50°. I govern temperature by opening and closing a door. During the coldest weather it is closed tight.

THE LOSS IN THIS SECTION.

It has been quite heavy, and will probably be increased before honey comes. One neighbor started with 32, and lost all but 4; another, 4 in fall, all gone; another, 12 in fall, 2 left. Nearly all have lost some. I would put the average at ¼ loss in this locality. **L. D. Gale.**

Stedman, N. Y.

Bees have wintered well here. I went into winter quarters with 5 colonies, and they are all right so far. **Cyrus Wilson.**

Fairmount, Ind., April 18, 1888.

BEES IN FINE SHAPE.

The reports from 12 apiaries in my vicinity are very encouraging, the loss being only about 5 per cent for the winter and spring so far, and, as a rule, bees are in fine shape. **W. Crommie.**

Cobleskill, N. Y., March 30, 1888.

NEW POLLEN.

My bees are doing pretty well. They are working on natural pollen gathered from willow and cedar; but there is no honey yet. I have one colony that is about to fail; they have plenty of sealed stores, a laying queen, and a little brood; but there are very few bees left in the hive. I put them in a good new hive. They have as much brood as I think they can take care of. What do you think is the matter with them, and can I do any thing more for them? **D. M. Dorsey.**

Rainier, Ore., Mar. 23, 1888.

As you describe your bees, we should say they have the spring dwindling. It is usually caused by, or seems to follow, unseasonable weather in March and April, and sometimes clear down into May. See A B C.

REPORTS DISCOURAGING.

"BEES DON'T PAY," SO SOME SAY; LOSS 75 % BECAUSE OF NO CARE.

I HAVE been watching GLEANINGS for some time for some kind of a report from this part of the State in reference to the way the bees had wintered. Having seen nothing on that subject I will now report that fully 75 per cent of the bees in Nodaway County died from poor care and lack of stores last winter. A great many claimed that, if the bees could not make their own living, they might starve. The consequence is, there are but few bees left in this part; some men losing as many as forty swarms; and almost all who had but few colonies have lost all, and say they are done with the bee-business, as it does not pay.

I went into the winter with eleven colonies, and came out with three; but the fault was my own, as I was not in reach of my bees when they ought to have been fed, and I could not get to them to feed them. **G. W. Wilcox.**

Hopkins, Mo., Apr. 6, 1888.

WINTER LOSSES.

Last fall I had under my charge, in three apiaries, 53 colonies of bees in good shape for winter, as I thought. I have just looked them over this week, and find in my home apiary of 23 colonies there are 11 living, and three of them are weak, but all are gathering honey freely. In another yard of 17 hives there are 5 living, and the last lot of 13 has 9 alive and in good condition, three with drones flying on the 20th of April, and one colony that was queenless two weeks ago. **J. C. Balch.**

Bronson, Kan., Apr. 21, 1888.

BEES IN BAD CONDITION.

The Chapman honey-plant has gone where the woodbine twineth. Jack Frost was too much for it.

Bees are in bad condition—dysentery, spring dwindling, and swarming out; scarcely any rain. Drought killed most of the white clover last year, and has not got started again. We don't look for much of a crop of honey. HALLETT & SON.

Galena, Ill., Apr. 7, 1888.

Our Chapman honey-plant has fared much as yours during the past winter; but the freezing and thawing during the months of March and April have been with us very trying to all plants wintered over.

OUR OWN APIARY.

CONDUCTED BY ERNEST R. ROOT.

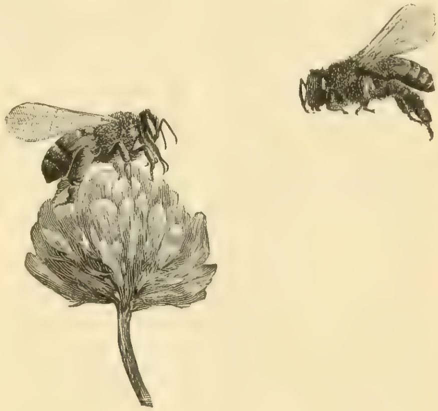
BEES ON THE WING.

I WONDER how many of our readers know exactly the position of a bee's legs while he is on the wing. If there is any class of people who have erroneous ideas on this point, it is the average engraver. Usually a bee in mid-air is pictured as having both the anterior and middle legs projecting forward. (See outside cover of this journal, and you will see what I mean.) If I am correct, the legs are never in this position while in the air, except just as their owner is about to alight on a clover-head or some other object. When he is flying, his anterior and middle legs are folded compactly under his thorax, while the posterior —that is, the hind legs—sometimes hang downward full length, but usually close to the abdomen. There is a reason for this. If a bee were flying with all six legs sprawled in every direction, I fancy he would make poor progress in consequence of the friction from the air. The engraving above, representing a bee on the wing, at the right, is a very accurate representation, so far as my observation goes. It is necessarily accurate, because photographed by the instantaneous process. We have tried several times here, at the Home of the Honey-Bees, to catch a flying bee on the wing with our instrument, but never succeeded in getting a good focus.

Our good friend Alfred Watkins, of Imperial Mills, Hereford, England, has gotten out a series of magic-lantern slides, as well as a series of micro-photographs. These latter embrace views of the anatomical structure of the honey-bee.*

From the list of the former, I selected one slide representing a bee sipping from a clover-head, and one on the wing. This was sent to our engravers, and the result I submit above. If you don't believe a bee holds himself on the wing as shown on the right of the picture, suppose you watch a robber (particularly a black bee) while he holds himself poised aloft just before your nose, at such a distance from your face as to make it necessary for you, in order to get a view, to look at him cross-eyed. If he be inclined to sting, and seems to be selecting a good tender spot, you will observe that the front legs are uncoiled a little and extended forward slightly, ready to catch hold.

On the left is a very good representation of a bee on a head of clover. The camera was pointed at him just as he had run his proboscis down into one of the little cells, had withdrawn it, and was next about to reinsert it in another cell. I am very sorry that we have not the three acts represented. But friend Watkins is to be congratulated on his success as it is. From what experience we have had, I could never get the bees to adjust themselves just right, and I presume Mr. Watkins has had a similar experience.



Now, as dandelions in our Northern locality are just coming into bloom, our juvenile friends will find it of some interest to watch the bees as they alight on the yellow heads, just before alighting on, and while on the posy.

I do not know that there is any practical bearing in regard to the way in which bees hold their legs while on the wing; but if we are going to have pictures of them, let's have them accurate. There are so many very poor engravings of bees, it is a little refreshing once in a while to find one that tells the truth.

Murray & Heiss, of Cleveland, have the credit of reproducing the picture above.

NO FOUL BROOD.

Although we have had quite a spell of protracted cool weather, which would ordinarily discourage brood-rearing, yet our colonies have been raising brood to quite a large extent. We have just been through the bees to-day, Apr. 25, and no evidences of that malady have been found. Young bees are beginning to hatch, and our already strong colonies are being reinforced by the addition of young bees. No colonies have been lost since my last report.

THE CLARK AND BINGHAM SMOKERS.

To-day one of the boys has been using the Bingham and the other an improved Clark. They both work most excellently. The Bingham gives a little stronger smoke. The Clark, on the other hand, works easier, sends a blast to a greater distance, and the volume is amply pungent for our purpose. We find, also, that the Clark is more economical of fuel, and consequently does not require so frequent filling.

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*For further particulars in regard to these slides, see our editorial on page 955.

GLEANINGS IN BEE CULTURE.

Published Semi-Monthly.

A. I. ROOT,
EDITOR AND PUBLISHER,
MEDINA, OHIO.

TERMS: $1.00 PER YEAR, POSTPAID.

For Clubbing Rates, See First Page of Reading Matter.

MEDINA, MAY 1, 1888.

Let all those that put their trust in thee rejoice.—Ps. 5: 11.

WE have at this date, 8127 subscribers.

GLEANINGS AS AN ADVERTISING MEDIUM.

THE following from S. W. Morrison, one of our prominent advertisers, has come to hand.

A. I. ROOT.—Don't insert my adv't again. I have all the orders for queens I can fill for April and May. You can "pi" that ad. I can't take any more orders to be filled just now.
Oxford, Chester Co., Pa., April 11, 1888. S. W. MORRISON.

Will our readers please take notice?

A LIFE ANNUITY TO FATHER LANGSTROTH.

A MOVEMENT is on foot to create a life annuity in favor of L. L. Langstroth. Those of our readers who have been benefited by his writings and inventions, and who would therefore be glad to contribute something yearly to the father of American bee-keeping, should write to Dr. C. C. Miller, Marengo, Ill., for particulars.

CONDITION OF BUSINESS AT THIS DATE.

SO far this season orders have, with very few exceptions, been filled within three days from the time they reached us. Most of them have gone the same day, or the day following the receipt of order. But those big piles of goods we had prepared are being depleted rapidly. Another thing, there is a slight upward tendency in the price of beeswax. You will notice in our adv't we have marked the price up two cents per pound, although we have not changed the price of foundation. In view of these things, let me urge you to get your orders in early, that you may not be disappointed. The progressive bee-keeper has his supplies in readiness for the bees just as soon as they are needed.

ROADS AND ROAD-MAKING.

THE *Rural New-Yorker* for April 21 is a special number, entitled, "Road Special;" and the pictures on the front cover ought to be worth to every man who travels on our country roads the subscription price of the paper a year. The saddest part of it is, that the first two pictures are true—or, at least, have been true within the memory of most middle-aged farmers. The last two pictures we hope and pray may soon take the place of the former, if they have not indeed come pretty near it already in many localities. Reader, how are the roads in *your* vicinity? and if they are bad at certain seasons of the year, what do your people do toward making them better?

A NEW MACHINE FOR PERFORATING ZINC.

IN consequence of our low prices on perforated zinc, there has been a big run on it; so much so, indeed, that we felt justified in going to the expense of building a new and better machine. Our machinists have been at work on it for something like eight weeks, and its cost will be about $400. No pains has been spared, either in material or construction. In principle it is similar to the one rigged up a couple of years ago. Its weight is 2400 lbs. It has immense power, and is able to perforate 70 holes at a "chank." Our machinists were unable to put it together in time to judge of the quality of work, in order to make a report of it in this issue. But the superior cut of the dies, together with the fine workmanship on the steel and cast iron of the machine itself, justifies us in believing that the quality of the zinc will be second to none on the market. The prices of the zinc will be the same as quoted heretofore. Probably by the time this item reaches your eyes the machine will be in full operation. Samples mailed on application.

THE LOMB PRIZE ESSAYS.

FROM Dr. Irving A. Watson, Secretary American Public Health Association, Concord, N. H., we have received three of these extremely interesting and useful essays. The first is entitled, "Healthy Homes and Food for the Working Classes," by Victor C. Vaughan; the second, "The Sanitary Condition and Necessities of Schoolhouses and School Life," by D. F. Lincoln; the third, "Disinfection and Individual Prophylaxis against Infectious Diseases," by Geo. M. Sternberg. The price of the first one is 10 cts.; each of the others, 5 cts. These essays are published at cost, and should be in the hands of every person in the land. They are not dry dissertations on medical subjects, but are as interesting to read as any thing can possibly be. The hints contained in them touch us at every turn in life; and their observance will, without doubt, add to the sum total of human life, and render far more pleasant what remains to us. In the spirit of Christian philanthropy, Mr. Henry Lomb, of Rochester, N. Y., paid several hundred dollars for each of the essays referred to above, as being the best out of a large number sent in for the prize. We almost feel like begging of our readers to send and get these valuable works, for they are of vital interest to all. The thanks of this generation and of more to follow are due to Mr. Lomb for this judicious expenditure of wealth. Address Dr. Watson.

THAT HOARHOUND HONEY.

ONE of our subscribers sends us a large illustrated circular, entitled, "Hoge's Hoarhound Honey;" price 50 cents and $1.00 per bottle. On the circular, or advertising sheet, is a series of pictures, the first of which represents cutting honey out of the trees in Santa Rosa, Southern California, where a large amount of hoarhound grows naturally. The picture shows a bee-hunter following the bees; a man sawing off a limb; then cutting out the honey by the tubful. Then there is a picture of an apiary near Santa Rosa, and then there is a packing-room where the bottles of hoarhound honey are packed into boxes. On the other side of the sheet there is a series of pictures representing the manufacture of comb foundation, with a sort of rude backwoods honey-extractor. The pictures are very well gotten up; but my opinion is, that the whole thing is a scheme to sell this hoarhound honey at a big price. A string of testimonials is appended; but these testimonials are signed by parties without giving the addresses. Two of them are from England. A big testimonial for Mr. Hoge himself comes from the *A. B. J.*, but it does not say when or why it appeared. The New York *Commercial* and the New York *Times* also give Mr. Hoge a big puff. Now, if we have a subscriber in Santa Rosa, will he please tell us if he knows any thing about Mr. Hoge's hoarhound-honey apiary? Our stenographer suggests that we might put a decoction of hoarhound in the honey we already have, and then we could have it without starting a California apiary. The circular says that Hoge's hoarhound honey is sold by all druggists. Can anybody tell us where we can get a bottle? The circular has no date on it; furthermore, it gives a picture of the process of making *artificial honey-comb*.

HONEY STATISTICS FRESH FROM THE FIELDS.

ON page 277 of the *A. B. J.*, the editor remarks, in reply to a correspondent, on the matter of securing statistics, as follows :

> "At first we thought the best way to get statistics would be through the assessors, or a statistical bureau of each State; but in all probability those gathered by persons interested in the pursuit are of the most immediate value. We like the plan inaugurated by Mr. Root, in GLEANINGS, for the purpose, of which we gave a summary on page 243. Those obtained through the U. S. statisticians will go upon record, and be handed down to posterity in the history of the material resources of the country. We fear they will not be gathered and published soon enough to be available to the producer, in regulating market prices."

You are entirely correct, Bro. Newman. While we would in no way depreciate the value of statistics in the hands of the government, historically, yet we fear our Uncle Sam (and it takes him a good while to turn around sometimes) will not be able to dish them out in time to be of any service to bee-keepers, as affecting or regulating the price of honey on the market. If there has been a dearth of honey in any given district, the fact should be made known *at once*, in order that the resident bee-keepers of said district who have secured a moderate crop may not be in too great a rush to dispose of it at a sacrifice. A knowledge of such facts, fresh from the fields (not months afterward) is what is required. So thoroughly impressed were we with this view of the case that we thought best to get something a going in the matter of statistics on our own responsibility, *immediately*. It is true, with the limited number of contributors to the Honey Statistics which we have already inaugurated, we can not get at the number of colonies and the number of pounds of honey and wax in our broad domain, but we can collect considerable valuable information, and we believe there is no better medium for disseminating such information *on time* than through the medium of bee-journals.

DECISION OF THE U. S. SUPREME COURT IN REGARD TO THE PATENT ON THE ONE-PIECE SECTION.

A COUPLE of telegrams received a few days ago in regard to this matter read as follows:

Cleveland, Apr. 23.

MR. ROOT:—The Supreme Court affirms the decision of the District Court. I congratulate you. M. D. LEGGETT.

Cleveland, O., Apr. 23, 1888.

A. I. ROOT: Supreme Court holds Forncrook patent void.
F. A. OSBORNE.

I suppose this ends the controversy; and it is with a feeling of sadness that I announce the result, even though it has been decided in our favor. I feel sad to think of the amount of money that has been wasted in this lawsuit. I do not know what it has cost Mr. Forncrook, but it has cost me altogether somewhere between $1200 and $1300. At one time I offered Mr. Forncrook $500 to drop the matter. I told him that I should have to pay to our lawyers $500 or more, and that I would as soon pay it to him as to the lawyers. The proposal may have had the opposite effect from what I intended. The lesson we have learned may be worth something. The day is past, dear friends, when our courts will authorize one man to collect together the inventions of a great many, and, by a little improvement of his own, monopolize the whole thing. Mr. F. very likely produced a better one-piece section than anybody else; that is, he may have used better lumber, and finished it up a little nicer. He also did obtain a patent, or a sort of one. This patent, however, when subjected to close scrutiny in both cases, has been declared void. Another thing, Mr. Forncrook's employers declare that all the improvement he made on sections was made while in their employ, and by their directions. They decided to make a better-finished section than any that had yet appeared on the market, and selected him from among several workman to do what they wanted done, and according to their instructions. Possibly I may have been misinformed in regard to some of the points I have made; but it does not matter very much if I have. Now for the moral: Do not think of getting a patent on any thing you may have invented, unless the invention is *clearly* and *decidedly* your own. Even if you succeed in making a little improvement on something already in general use, it will not pay you to get it patented. I do believe in patents, and I am glad to respect the rights of others in the way of patents; but they should be *clearly* and *unmistakably* the inventions of the individual to whom the patent is granted.

SHIPPING BEES FROM THE SOUTH,

IN ORDER TO CATCH THE HONEY-FLOW AS IT INCREASES NORTHWARD.

THE following letter from Mr. Byron Walker has just come to hand. It seems he is going to put the scheme into actual operation, as given in the heading above.

Friend Root:—I have been in this State for several weeks past, buying bees, and I expect to remain here a month or so longer, increasing my stock preparatory to shipping north in time for the clover harvest. Can you give me the names of any parties living in Missouri or Illinois, in the vicinity of St. Louis, who might post me as to a good location for placing my bees for a couple of weeks before shipping home? I think of shipping from Helena to St. Louis, or some point near there, by boat, in time for the white-clover yield, if I can get the desired information. The parties who furnish it ought to live at some point on or near the river. I should prefer to locate south of St. Louis, as transshipment would be necessary to points above the city. If you can help me to the information desired, you will be doing me a great favor, and at the same time aid me in solving the problem proposed for solution by M. M. Baldridge.

Bees are doing well here at present on poplar and locust bloom, and are swarming to some extent. I found 15 cards of brood nearly a week since in a Mitchell hive. BYRON WALKER.

Marvell, Phillips Co., Ark., Apr. 24, 1888.

Will those of our subscribers who live on or near the river be kind enough to give friend Walker the information he desires?

Wants or Exchange Department.

Notices will be inserted under this head at one-half our usual rates. All ad's intended for this department must not exceed 5 lines, and you must SAY you want your ad. in this department, or we will not be responsible for any error. You can have the notice as many lines as you please; but all over five lines will cost you according to our regular rates. This department is intended only for bona fide exchanges. Exchanges for cash or for price lists or notices offering articles for sale can not be inserted under this head. For such our regular rates of 20 cts. a line will be charged, and they will be put with the regular advertisements.

WANTED.—Correspondence on apples, potatoes, seed-potatoes, cabbage, onions, small fruit, and fruit and produce generally. Consignments solicited. Will quote market at any time.
EARLE CLICKENGER,
4tfdb General Commission Merchant,
119 East Town St., Columbus, O.

WANTED.—To exchange 250 colonies of bees, for horses, mules, wagons, buggies, and 4 h. p. engine, or any thing useful on a plantation.
21tfd ANTHONY OPP, Helena, Phillips Co., Ark.

WANTED.—To exchange Quinby Chaff Hives, with 10 standing frames, one 4-frame honey-extractor, new, for beeswax, foundation, or offers.
MRS. OLIVER COLE,
6tfdb Sherburne, Chenango Co., N. Y.

WANTED.—To exchange Johnston's Sweet-raspberry plants, for new varieties of strawberry, raspberry, and blackberry, or plum and sour-cherry trees. 7-10db P. SUTTON, Exeter, Luz. Co., Pa.

WANTED.—To exchange bees in Heddon hives, for a light one-horse buggy.
79db S. C. KIRKPATRICK, Hodgenville, Ky.

WANTED.—To exchange best queen and drone trap made, for extractor or bee-supplies.
J. A. BATCHELDER,
Keene, N. H.

WANTED.—To exchange a fine gold watch, magic lantern, B. L. pullets, or from one to two hundred acres of land—plenty of basswood, etc., on good road, for Italian bees and supplies. Correspondence solicited. Address G. C. HUGHES,
Pipestem, Summers Co., W. Va.

WANTED.—To exchange Italian bees and queens for Holstein male calf, or a good 2-seat buggy or hack. J. W. COLWICK,
Norse, Bosque Co., Texas.

WANTED.—To exchange eggs of B. Minorcas, Langshans, and fowls, for comb fdn., beeswax, tested queens, printing-press, and outfit; Flobert rifle; revolver, bee-supplies, and things useful.
9tfdb E. P. ALDRIDGE, Franklin Square, Ohio.

WANTED.—To exchange 3¾ boxes, 5¼x5¼ glass, for Chatillon spring balance that will weigh 150 to 200 pounds, or for offers. F. D. WOOLVER,
9tfdb Munnsville, N. Y.

WANTED.—To exchange four chaff hives, one smoker, knife, drone-trap, comb-bucket, bee-books, sections, etc., for honey or offers; also Silver-spangled Hamburg fowls. OTTO LESTINA,
9d Derby, Conn.

WANTED.—Simplicity hives, bees, queens, B. L. eggs, books, or offers, for printing-outfit, fruit-evaporator, Langstroth hives, books, magic lantern, Ideal transparent-front veils, S. S. Hamburgs, relics, and curiosities. JNO. C. CAPEHART,
St. Albans, W. Va.

WANTED.—To exchange 50 Root chaff hives, and 1 Given press, new, and dies for L. frame, for comb or extracted honey, to be delivered next Sept. Write to E. T. FLANAGAN,
9-10d Belleville, St. Clair Co., Ills.

WANTED.—To exchange 50,000 raspberry-plants, Turner, Cuthbert, and Philadelphia, for fence-wire, wire for grapevines, poultry-netting, paint, nails, or any thing I can use on a small-fruit or bee farm. Address R. P. LUPTON, Excelsior, Minn.

WANTED.—To exchange Wyandotte eggs for tested Italian queens. W. H. OSBORNE,
9-10d Chardon, Ohio.

WANTED.—To exchange first-class honey-sections, any size, for raspberry and strawberry plants and queens. W. MURRAY,
9d Goshen, Ind., Box 323.

WANTED.—To exchange P. Rock fowls and pure Italians swarms of bees for fdn. Write for particulars. J. R. REED, Milford, Jeff. Co., Wis.

WANTED.—To exchange a Given foundation-press for a Hall or Hammond type-writer, or offers; also a foot-power saw for exchange.
8d C. A. GRAVES, Birmingham, O.

WANTED.—To exchange choice colonies of fine Italian bees for a good honey-extractor; also other supplies. Address W. J. HILLMAN,
Green River, Vt.

WANTED.—Queens with ½lb. of bees, in exchange for raspberry plants; Turner, Cuthbert, Hansell, and Marlboro. Write what you want.
GEO. H. COLVIN, Dalton, Pa.

WANTED.—To exchange a patent on bench-clamp for six-horse-power engine, or any thing useful. Address F. P. HISH,
9d Henton, Shelby Co., Ill.

WANTED.—To exchange combs in Lang. frames, or Plymouth Rock eggs for Italian queens.
9d ST. JOSEPH APIARY, St. Joseph, Mo.

WANTED.—To exchange Italian bees in Simplicity hives, for cottage organ, B. L. shot-gun, dry goods, or offers. W. B. COGGESHALL,
9-10-11d Box 84. Summit, Union Co., N. J.

WANTED.—To exchange 1-story chaff hives with fixtures, for beeswax or poultry.
R. B. BONEAR, Cherry Ridge, Pa.

WANTED.—To exchange thoroughbred P. Cochins for Italian bees in hives, or shipping-boxes preferred, or any thing useful. W. H. WINSCOTT,
Sturgeon, Mo.

Black and Hybrid Queens For Sale.

For the benefit of friends who have black or hybrid queens which they want to dispose of, we will insert notices free of charge, as below. We do this because there is hardly value enough to these queens to pay for buying them up and keeping them in stock; and yet it is oftentimes quite an accommodation to those who can not afford higher-priced ones.

A few Ark. brown and hybrid queens at 20 to 40 cents each. SALLIE MORROW, Wallaceburg, Ark.

For sale, 20 hybrid queens at 50c each, all young stock, raised in 1887, from good Italian mother.
H. L. FISHER, Milford, Indiana.

My black queens are all gone, and I shall probably have to disappoint many. FRED LEININGER,
Douglas, Ohio.

Unparalleled Offer!

I will have about 15 tested Italian queens to mail in May, at $1.00 each. Also queens for season, and nuclei very cheap. State what you want, and address S. F. REED. N. Dorchester, N. H.

NON-SWARMING QUEENS.

Send for circular to **W. C. GILLETT,**
Le Roy, N. Y.

ALL difficulties in pyro development and toning explained by an artist of more than twenty years' experience; methods, formulæ, and information which will enable amateurs to make first-class photographs. Sent on receipt of 25 cents. 9dtfdb
JOHN CADWALLADER, Photographer, North Vernon, Ind.

KENWARD-HALL APIARY

TESTED QUEENS AT ONE DOLLAR EACH.

We do not send out warranted queens. Our Tested Queens are sold at the price asked for warranted.

Our queens are from imported mothers, are LARGE, LIGHT, PROLIFIC, and, ABOVE ALL, A PLEASURE TO HANDLE, and will prove A No. 1 in every respect. SATISFACTION GUARANTEED. See ad. in GLEANINGS March 1.

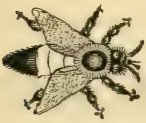
Untested queens - - - - - - -	$ 75
3-frame nucleus, 3 lbs. bees, tested queen -	3 00

Orders filled promptly by return mail. Special rates to dealers.

Write for price list.

J. W. K. SHAW & CO.,
(Iberia Parish.) **LOREAUVILLE, LA.**

MY 20TH ANNUAL PRICE LIST OF ITALIAN, CYPRIAN, and HOLY-LAND BEES, QUEENS, NUCLEUS COLONIES, and APIARIAN SUPPLIES, sent to all who send me their name and address.
7-15d *H. H. BROWN, Light Street, Col. Co., Pa.*



4 YOU BUY

your supplies for 1888, send for my 32-page illustrated Catalogue, describing my new reversible-frame hive and T super. They are perfection. Address **E. S. ARMSTRONG,**
5tfdb **JERSEYVILLE, ILLS.**

---

200 COLONIES of BEES FOR SALE

IN MOVABLE-FRAME HIVES.

Both Hofman and Moon frames. For particulars and prices, address **D. E. FLOYD,**
6-9db **Fort Plain, N. Y.**

J. P. Caldwell, of San Marcos, Tex.

Pure Italian queens.	April.	May.	Jun. to Oct.
Select tested	$2 75	$2 25	$1 75
Tested	1 75	1 50	1 25
Untested	1 00	90	75
Six untested	5 00	4 40	3 75
Twelve untested	9 50	8 00	7 00

All queens will be shipped in cages which answer the double purpose of an introducing and shipping cage. Address J. P. CALDWELL, San Marcos, Tex.
7-18db

PURE ITALIAN BEES FOR SALE.

Full colony in A. I. Root's Simp. hive $6.00. Two-frame nuclei $3.00. Three-frame $3.50. Each nucleus and full colony to contain a tested queen and plenty of bees and brood, all on wired L. frames, combs drawn from fdn. Hives new, every thing first-class. To be shipped in May. Safe arrival guaranteed. I shall do by all as I would be done by. Address
N. A. KNAPP,
7-10db **Rochester, Lorain Co., O.**

IMPORTANT!

QUEENS to be shipped by return mail, when ordered. It is best to get two and four frame nuclei when ordering bees. Choice, fine, solid red and yellow Italian queens, at the following prices: Untested, from now through the season, $1.00; tested, $2.00; select tested, $2.50; standard breeders, $3.00. Bees by the pound, $1.00; frame of brood, 75 cts. My bees are gentle Italians, with great power of wing, and fine honey-gathering capacity. No foul brood, no moth. 7-18db

R. H. CAMPBELL,
LOCK BOX 215. **Madison, Morgan Co., Ga.**

NEARLY THIRTY TONS
—OF—
DADANT'S FOUNDATION
SOLD IN 1887.

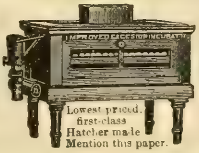
It is kept for sale by Messrs. T. G. Newman & Son, Chicago, Ill.; C. F. Muth, Cincinnati, O.; Jas. Heddon, Dowagiac, Mich.; F. L. Dougherty, Indianapolis, Ind.; B. J. Miller & Co., Nappanee, Ind.; E. S. Armstrong, Jerseyville, Ill.; E. Kretchmer, Coburg, Iowa; P. L. Viallon, Bayou Goula, La., M. J. Dickason, Hiawatha, Kansas; J. W. Porter, Charlottesville, Albemarle Co., Va.; E. R. Newcomb, Pleasant Valley, Dutchess Co., N. Y.; D. A. Fuller, Cherry Valley, Ill.; J. B. Mason & Sons, Mechanic Falls, Maine; G. L. Tinker, New Philadelphia, O., Jos. Nysewander, Des Moines, Ia.; C. H. Green, Waukesha, Wis.; G. B. Lewis & Co., Watertown, Wis.; J. Mattoon, and W. J. Stratton, Atwater, O., Oliver Foster, Mt. Vernon, Iowa; C. Hertel, Freeburg, Ill.; Geo. E. Hilton, Fremont, Mich.; J. M. Clark & Co., 1409 15th St., Denver, Colo.; Goodell & Woodworth Mfg. Co., Rock Falls, Ill.; J. A. Roberts, Edgar, Neb., E. L. Goold & Co., Brantford, Ontario, Canada, and numerous other dealers.

Write for *free* samples, and price list of bee supplies. We *guarantee every inch* of our foundation *equal to sample in every respect*. Every one who buys it is pleased with it.

CHAS. DADANT & SON,
3btfd **Hamilton, Hancock Co., Illinois.**

IMPROVED EXCELSIOR INCUBATOR!

Simple, Perfect and Self-regulating.


IMPROVED EXCELSIOR INCUBATOR
Lowest priced. first-class Hatcher made Mention this paper.

Hundreds in successful operation. Guaranteed to hatch as large percentage of fertile eggs as any other hatcher, send 6c. for new Illustrated Catalogue.
Circulars Free.
GEO. H. STAHL,
Patentee and Sole Manufacturer,
QUINCY, ILLINOIS.

WE HANDLE THE BEST SUPPLIES
OF ALL MANUFACTURERS.

We also make the best smoker on the market. All dealers should handle it. Send for wholesale list. It should be in every apiary; let every beekeeper send for my illustrated catalogue, free. All implements used in an apiary, sold at reasonable rates. Beeswax bought at GLEANINGS quotations.
3-10db **W. E. CLARK, Oriskany, N. Y.**

Maple Sugar and Syrup
Guaranteed Pure.

As we are right in the midst of a first-class sugar-maple region, we handle large quantities of maple sugar and syrup. We buy it direct from the farmers, and handle nothing but that we guarantee *ABSOLUTELY PURE MAPLE*. The syrup is put up and labeled by the maker, and he will replace every gallon that is not pure first-class maple syrup when the can is opened Price of syrup, $1.10 per gal; $10 for 10 gal. Price of sugar, 9, 10, and 11c per lb., according to quality; ½c less per lb. in 50-lb. lots; 1c less in bbl. lots of 300 lbs. **A. I. ROOT, Medina, Ohio.**

ALSIKE.

I sold more alsike seed last season than all the supply-dealers combined. Write to headquarters for prices. No poor seed in stock. Also 25 large pkts. of garden-seed, fresh and No. 1 in all respects, for 65 cts., *postpaid.* Write for further particulars, to C. M. GOODSPEED, Box 27, Thorn Hill, N. Y. Be sure and name Box 27 in answering this adv't.

BEE-KEEPERS' SUPPLIES.

HIVES, FRAMES, CASES, SECTIONS, COMB FOUNDATION, ETC.

Send your address for FREE CIRCULAR to

REYNOLDS BROS.,
5tfdb **Williamsburg, Ind.**

BEES and QUEENS

READY TO SHIP.

Friends, if you are in need of Italian bees and queens, reared from imported mothers, I can accommodate you at the following low prices: Italian bees, ½lb., 75 cts.; 1 lb., $1.00; untested queens, $1.00; tested, $2.00. Hybrid bees, ½ lb., 65 cts.; 1 lb., 90 cts.; Hybrid queens, 75 cts. Prices by the quantity will be sent on application. 5-11d

W. S. CAUTHEN, Pleasant Hill, S. C.

1872. ALL MY ORDERS FOR 1887 were filled without one word of complaint; and the progeny of my queens was pronounced by some to be the finest they ever saw. I am now booking orders, to be filled as soon as weather permits. **1888.**

One untested queen - - - - - -	$ 80
One tested " - - - - - - -	1 00
One selected " - - - - - - -	1 50

Safe arrival and satisfaction guaranteed.

Send for price list. **C. M. HICKS,**
-7-9d **Fairview, Wash Co., Md.**

ITALIAN QUEENS

BEE-HIVES,

T-TIN CASES, SECTIONS, METAL CORNERS,

Honey-Extractors, and Fruit-Boxes.

3tfd *SEND FOR PRICE LIST.*

B. J. MILLER & CO., - Nappanee, Ind.

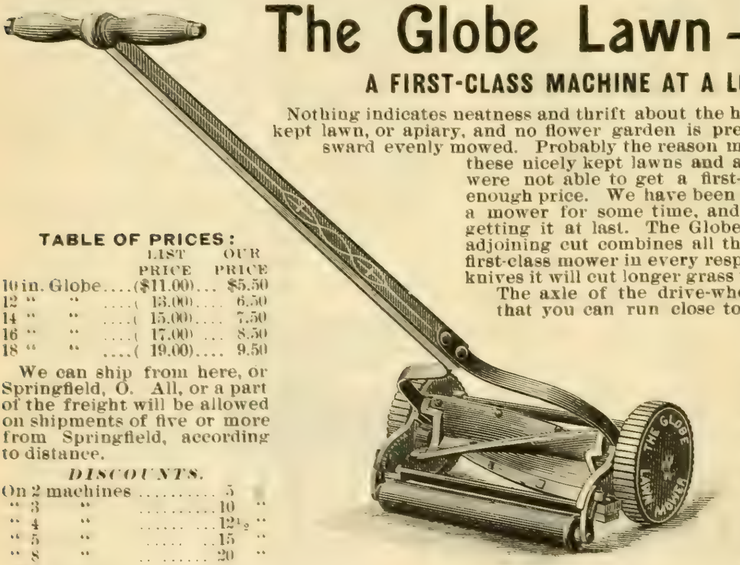
FOLDING BOXES.

Enclose your COMB HONEY in our Cartons. Prices Reduced for 1888. Sample 5c. 20 page Catalogue of Glass Jars, Honey Labels, etc., FREE. Send for it. Address

A. O. CRAWFORD, S. Weymouth, Mass.

The Globe Lawn-Mower.

A FIRST-CLASS MACHINE AT A LOW PRICE.



Nothing indicates neatness and thrift about the house so well as a nicely-kept lawn, or apiary, and no flower garden is prettier than a nice green sward evenly mowed. Probably the reason more people do not have these nicely kept lawns and apiaries is because they were not able to get a first-class mower at a low enough price. We have been on the lookout for such a mower for some time, and we have succeeded in getting it at last. The Globe lawn-mower shown in adjoining cut combines all the best features, and is a first-class mower in every respect. Having only three knives it will cut longer grass than those having four. The axle of the drive-wheel does not project, so that you can run close to the hive. It has two drive-wheels and roller, and the driving gears are simply perfect. Nothing could be more simple and effective. The prices are very much lower than on any other first-class mower, in fact they are about as low as the cheap grade of machines, and yet this mower is not surpassed by any machine on the market, but is guaranteed to be first-class.

TABLE OF PRICES:

	LIST PRICE	OUR PRICE
10 in. Globe....	($11.00)...	$5.50
12 " "	(13.00)....	6.50
14 " "	(15.00)....	7.50
16 " "	(17.00) ...	8.50
18 " "	(19.00)....	9.50

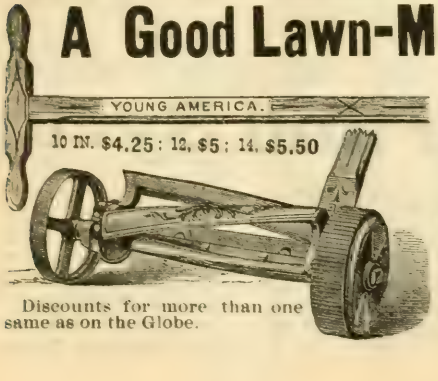
We can ship from here, or Springfield, O. All, or a part of the freight will be allowed on shipments of five or more from Springfield, according to distance.

DISCOUNTS.

On 2 machines	5
" 3 "	10 "
" 4 "	12½ "
" 5 "	15 "
" 8 "	20 "
" 10 or more, ...	25 "

A. I. ROOT, Medina, Ohio.

A Good Lawn-Mower for Only $4.25.



No argument is needed to convince you that a nice green lawn, well kept, beautifies the home, and indicates thrift. The reason many can not have such a lawn is because they can not get a good Lawn-mower cheap enough. Here is one we have been selling for three years. We have sold over 200, and they give universal satisfaction. They run surprisingly easy. Having only three knives on the reel, they will cut very long grass, and cut it close to the ground or not just as you choose, by holding the handle high or low. Recently the manufacturers made an assignment, and we secured their entire stock very low, and we are thus able to offer them at these very low prices:

10 INCH, $4.25; 12 INCH, $5.00; 14 INCH, $5.50.

Discounts for more than one same as on the Globe.

A. I. ROOT, Medina, O.

HOLY-LAND QUEENS

A SPECIALTY.

Bees in Langstroth frames, or by the pound or nucleus, and bee-keepers' supplies.

8-13db **GEO. D. RAUDENBUSH,**
Office 445 Chestnut St. Reading, Pa.

HERE I COME

To say that E. Baer, of Dixon, Ill., has sold out his supply business to the Goodell & Woodworth Mfg. Co., who will sell V-groove basswood sections at from $2.75 to $4.00 per M. Other supplies correspondingly low. Samples and circular free. Address the **GOODELL & WOODWORTH MFG. CO.,**
3tfdb **ROCK FALLS, WHITESIDE CO., ILL.**

HOW TO RAISE COMB HONEY. See Foster's advertisement on another page. 4-15db

New Orleans Apiary.

I will breed and mail guaranteed pure Italian queen-bees from the best stock for business, for one dollar each, the coming season. Orders solicited, and queens mailed upon the receipt of order. I will also sell 350 colonies of Italian bees in Langstroth hives, cheap, or any number of colonies to suit purchaser. I can ship by river, railroad, or steamship to any point. Address

6tfdb **J. W. WINDER, New Orleans, La.**

FOUNDATION, 10-lb. lots or more, 35 cts. per lb.
5tfdb **JAS. McNEIL, Hudson, N. Y.**

HEADQUARTERS For Cards and Stationery for Bee-keepers and Others.

Besides our beautiful eight-color chromo card, we have other neat designs, also a fine selection of fancy address cards, for old and young, for business and amusement. Also two and three letter monograms, all at low prices. **See Here,** 50 fancy printed cards, 15 cts.; 300 envelopes, 300 letter-heads, printed, $1. Package 25 assorted cards, 10 cts. Neat box of cards and honey candies, 15 cts. Circulars free. Address J. H. MARTIN, Hartford, N. Y.
20tfdb

BEAUTIFUL QUEENS FROM IMPORTED MOTHERS

TESTED, $2.00; UNTESTED, $1.00.

LIZZIE NYSEWANDER, NEW CARLISLE, CLARKE CO., OHIO.
8-9tfd

1888. 1888.

Pure Italian Bees and Queens

for sale in Full Colonies or Nuclei. Five L. frame nuclei a specialty. My queens and bees possess all the good qualities of the most desirable honey-bee. Send for prices. **WM. LITTLE,**
6tfdb **Marissa, Ill.**

ITALIAN BEES FOR SALE.

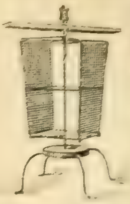
Seventy colonies in ten-frame Langstroth hives, at $5.00 per colony. **JOHN GRANT,**
8-11db Batavia, Clermont Co., Ohio.

BEES! BEES!

I will sell full colonies in eight-frame Langstroth hives, one to five, $5; over five, $4.50.

8-9d H. C. GILSON, Burr Oak, Mich.

WANTED 1000 CUSTOMERS for Pure Italian bees & queens. Address, MARTIN & MACY,
6-11b No. Manchester, Indiana,
Or J. J. Martin & Co., Publishers of Rays of Light.



The Simplest Extractor Out.

Does perfect, good work, and lasts well. Is adjustable for barrels or cans, and saves express charges on cans.

Price Only $2.50.

Patented Feb. 9, 1888.

Address the inventor,
8-10db **J. C. MELCHER.**
O'Quinn, Fayette Co., Tex.

By the use of NATURAL GAS

WE MANUFACTURE

BEE-HIVES, ONE AND FOUR PIECE SECTIONS, SMOKERS, FEEDERS,

AND ALL NECESSARY APIARIAN SUPPLIES.

BEST GOODS AT LOW PRICES.

Send for list, to **J. J. BRADNER,**
8-9d **Findlay, Ohio.**

ITALIAN BEES AND QUEENS

Tested queen, $1.50; untested, $1.00; bees per lb., $1.00; frames of brood, 50c each; 3-frame nucleus, containing 2½ lbs. bees, 2 L. frames of brood and tested queen, $4.50. With untested queen, $4.00. Orders filled promptly. Send for circular.
7-9d **MISS A. M. TAYLOR,**
Mulberry Grove, Bond Co., Ill. Box 77.

FREE! My catalogue of Bees, Queens, Apiarian Supplies, Standard Poultry (7 varieties), Japanese buckwheat, Green Mountain and Empire State potatoes. My stock is first-class. You should see my prices for 1888 before you order. CHAS. D. DUVALL,
5tfdb Spencerville, Mont. Co., Md.

DADANT'S FOUNDATION FACTORY, WHOLESALE and RETAIL. See advertisement in another column. 3tfbd

ITALIAN BEES, QUEENS, AND EGGS

from high-class Silver Laced Wyandotte, and S. C. B. Leghorn fowls, at living rates. Price list free.
8tfdb GEO. A. WRIGHT, Glenwood, Susquehanna Co., Pa.

FOR SALE.

Italian Queens and Bees by the Colony, Nucleus, and Pound. Dealer in Bee-keepers' supplies. Address **OTTO KLEINOW,**
5tfdb (Opp. Fort Wayne Gate), Detroit, Mich.

BEES, Queens, Hives, Given Comb Foundation, Apiarian Supplies, German Carp, Small-fruit Plants. Send for catalogue free. E. T. Flanagan, Belleville, Ills.
1-24db.

Oliver Foster, of Iowa.

Italian bees, 60 cts. per lb. in July, to $1.00 in April. Pkgs. with queens, brood, etc., cheap. *No foul brood near.*

BEE SUPPLIES.—Best sections, cases, and hives. Catalogue free. Send 5 one-cent stamps for pamphlet, "HOW TO RAISE COMB HONEY,"—chuck full of practical information "in a nutshell."
4-15db Address OLIVER FOSTER, Mt. Vernon, Ia.

LITHOGRAPH LABELS

In 12 Colors, at $2.00 per 1000.

When Mr. James Abbott, of London, Eng., was with us a year ago, he had samples of a very neat lithograph label, oblong in shape, measuring $2\frac{1}{8}$x$2\frac{5}{8}$. We mentioned them at the time in GLEANINGS, agreeing to send samples as soon as we received them. Well, they have just come to hand, although we ordered 50,000 over a year ago. They are about the nicest labels we ever saw for glass tumblers, pails, and small packages of honey. We will mail a sample inclosed in our label catalogue, free on application, and will furnish them postpaid at the following prices: 5 cts. for 10; 40 cts. for 100; $1.25 for 500; $2.00 for 1000. A. I. ROOT, Medina, O.

A GRAND OFFER!

on bees. I will sell to the first man that means business my 20 swarms and hives, with empty combs, extractor, capping-box, etc., at a bargain, for I can not run a store and bees too. I must sell immediately. This is the best kind of a chance for any one to go into the business. Come and see me if you wish to buy.

J. H. MURDOCK,
9d Dexter, Mich.

SECOND-HAND.

We have on hand a quantity of 60-pound tin cans with screw top, cased, 2 in a case of wood, which we will sell at 60 cts. per case. They are the same as A. I. Root sells at 90 cts. per case, excepting having been once used.

F. D. WOOLVER,
9tfdb Munnsville, Madison Co., N. Y.

NOTICE!

10 per cent discount on Hives, Brood-frames, and V-groove Sections, until June 1st. Price list free.

J. M. KINZIE & CO.,
Rochester, Oakland Co., Mich.

Samples of the American Apiculturist

sent free. Also our price list of the best strain of pure Italian queens Address

APICULTURIST, Wenham, Essex Co., Mass.

TO GIVE AWAY!

I will sell 100 colonies of bees, mostly Italians, all in good shape, at less than half price, and throw in FREE all fixtures, hives in flat, empty combs, tools, etc. Have had experience in moving by rail, and will assist if desired. Good reason for selling.

L. T. AYRES, Kankakee, Ill.

Seed Potatoes For Sale.

Extra Early Polaris. Will mail for 50c a pound until seed runs out. I also keep on hand all kinds of bee-supplies.

WM. P. SWARTZ,
Schultzville, Lacka. Co., Pa., Box 26.

LIQUID GLUE
FOR SALE EVERYWHERE

LEPAGE'S LIQUID GLUE.

Few words of praise are necessary for this excellent article, so widely known and advertised. It is one of the best of liquid glues. Always ready for use. Mends every thing. We have 4 different-sized packages.

Glass bottle like the adjoining cut for 10 cts.; 75 cts. for 10; $7.00 per 100. Half-gill tin cans with screw cap, and brush fastened to inside of cap, price 15 cts. each; $1.10 for 10; $10.50 per 100. This latter can be sent by mail for 10c. extra for postage and packing.

Gill tin can with brush, 20 cts.; 10 for $1.50; 100 for $14.00; ½-pint tin cans, no brush, 25 cts.; $2.20 for 10; $21.00 per 100.

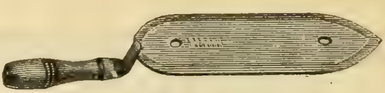
LePage's MUCILAGE, in large bottles, with a nice enamel-handle brush, at 10 cts. each; 75 cts. for 10; $7.00 per 100. This is the best mucilage made, and will do nicely in many cases for glue, although it is pretty thin to be used as glue.

A. I. ROOT, Medina, O.

A Four-Color Label for Only 75 Cts. Per Thousand!

Just think of it! we can furnish you a very neat *four-color* label, with your name and address, with the choice of having either "comb" or "extracted" before the word "honey," for only 75 cts. per thousand; 50 cts. per 500, or 30 cts. for 250, postpaid. The size of the label is 2½ x 1 inch—just right to go round the neck of a bottle, to put on a section, or to adorn the front of a honey-tumbler. Send for our special label catalogue for samples of this and many other pretty designs in label work.

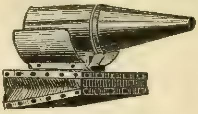
A. I. ROOT, Medina, Ohio.



Bingham & Hetherington's Honey-knife.

Old reliable Bingham Bee-Smokers and Bingham & Hetherington Honey-knives. They last 8 years; never clog up or go out. Send card for free circular, descriptive of the best and cheapest tools to use.

THEY LAST.



ADDISON, VT.—Have one of your smokers, good yet, used 6 years. E. J. SMITH.

SILVER CREEK, KY.—I have had one of your smokers 3 years, and it is as good as new. T. W. HUDGENS.

ELM GROVE, MASS.—Have one I have used six seasons, good yet. F. M. TAINTOR.

SPRINGFIELD, O.—Your smoker good yet, and used four seasons. WM. W. BURRET.

LONE TREE, MO.—I have used one of your bee-smokers five years, and it is good yet.

LEE EMRICK.

PRICES:

		By mail, postpaid.
Doctor smoker (wide shield)	3½ inch	$2 00
Conqueror smoker (wide shield)	3 "	1 75
Large smoker (wide shield)	2½ "	1 50
Extra smoker (wide shield)	2 "	1 25
Plain smoker	2 "	1 00
Little Wonder smoker	1¾ "	65
Bingham & Hetherington honey-knife		1 15

TO SELL AGAIN, apply for dozen or half-dozen rates. Address T. F. BINGHAM, or

BINGHAM & HETHERINGTON,
ABRONIA, MICH.

BEE - SUPPLIES

AT DIFFERENT PLACES,

TO BE DISPOSED OF AT A SACRIFICE.

These are all new and first-class goods, which, for various reasons, are on our hands, away from home; and to dispose of them we offer them very low. If some of our readers, not far from where the goods are, need them, this is a good opportunity to get a bargain. Indicate which one you want, by the number as well as name.

No. 1. At Eureka Springs, Carroll Co. Ark.
100 wide frames, to hold eight 1-lb. sections. Value $2.00. Will sell for $1.50.

No. 2. At San Marcos, Hays Co., Texas.
5000 prize sections, 5¼ x 6¼ high. Value $20.50. Will sell for $17.00.

No. 4. At Eureka, Ill.
100 lbs. of heavy brood foundation, 8⅝ x 17⅛, for wired L. frame. Value $36.00. Will sell for $32.00.

No. 6. At Lawrenceburg, Tenn.
One No. 1 Honey-extractor, for frames 11¼ x 12½ or less in depth. Value $6.00. Will sell for $4.50.

No. 7. At Yorktown, Delaware Co., Ind.
11 Heddon slatted honey-boards double bee-space. Value $1 00. Will sell for 75 c.

No. 9. At Higginsville, Mo.
One 4 H. P. engine and boiler complete, used only five months. Worth new, $275. Will sell for $195.

No. 10. At Aplington, Ia.

10 two-story portico hives in flat	$9.00	Value $24.60. Will sell for $20.00.
100 metal-cornered frames	2.20	
100 wide frames	2.00	
200 tin separators	3.00	
600 sections	2.40	
200 sections, 5⅝ x 4¼	1.00	
3 lbs. thin foundation, 49 c	1.47	
7 lbs. brood foundation, 39 c	2.73	
10 enameled sheets	.80	

No. 11. At Johnson City, Washington Co., Tenn.
One honey-extractor that will take frames 11½ x 16, or smaller. Value $7.00. Will sell for $5.00.

No. 12. At Caribou, Me.
900 sections, 4½ x 5 x 1 7/16 wide, open on all four sides. Value $4.50. Will sell for $2.50.

No. 15. At Rockdale, Mass.
1000 sections, 4½ x 4½ x 1¾, open all around. Value $4.60. Will sell for $3.00.

No. 16. At Lochiel, Ind.
20 slatted honey-boards to use between brood-chamber and T supers on Simp. hives, bee space top and bottom as we now make them. Value $1.80. Will sell for $1.50.

No. 17. At Berlin, Wis.
One 36-inch Exhaust Fan, second hand. It was used about 8 years in our factory. Boxes have been re-babbitted and the fan is in first-class running order. A new one this size is worth about $100.00. We will sell this for $25.00. It is a bargain to the one who is in need of one this size.

No 18. At Knoxville, Iowa.
One light-power saw-mandrel, $5.00; one 8-in. rip-saw, $1.15; one 6-in. cut-off saw, $.80; and one 5-in. dovetailing saw, $.85. Worth $7.80. Will sell for $6.50.

A. I. ROOT, Medina, O,

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PRICE LISTS RECEIVED.

J. N. Colwick, Norse, Texas, sends out a one-page list of Italian bees. He says: "They are the bees for this country. All through the hardest and dryest years in Texas, I have never failed to market the finest honey."

M. E. Mason, Andover, O., sends us his list, 8 pages, of foundation and supplies. A nice sample each of light and heavy foundation is inclosed.

Miss A. M. Taylor, Mulberry Grove, Ill., sends out a list, one page, of Italian bees and queens.

G. H. Knickerbocker, Pine Plains, N. Y., sends out a neat circular of 17 pages, relative to bees and queens.

KIND WORDS FROM OUR CUSTOMERS.

GLEANINGS AS AN ADVERTISING MEDIUM.

Send me no more orders; GLEANINGS enabled me to sell out in 4 days. T. K. MASSIE.
Concord Church, W. Va., April 28, 1888.

I received my goods in fine shape, and am well pleased with them. I never nailed together any thing nicer in the line of bee-material.
Killbuck, Holmes Co., O. JACOB BOWER.

I received four boxes of bee-stuff all right. Every thing came in fine shape, and just in time for my bees. M. J. TWINING.
Hanford, Cal., Apr. 21, 1888.

GLEANINGS AN OLD FRIEND.

Many thanks for GLEANINGS. You would have laughed if you could have seen us meet. It was like meeting an old friend. G. H. REED.
Anneville, Tex., Mar. 12, 1888.

WELL PACKED.

The box of goods came in good condition, and we were well pleased with the contents. The packing was so well done I believe they could have gone to China, and even the glass remained unbroken.
Dayton, Mo., Apr. 24, 1888. L. M. WAGNER.

OUR LOW PRICES.

I am well pleased with my goods, and will soon order several articles included in your catalogue, which can not be had here at all, or else at very high prices. The bell jack-screw, for instance, would cost $5.50 here, and do only two inches more work. I think the screw marvelously cheap.
Henderson, Texas, April 23. WM. B. BAXTER.

THANKS.

Mr. Editor:—Or perhaps I should say *dear* editor, for truly the latter is the correct expression—I want to thank Prof. Cook and you for his "Brighter Picture," and your remarks in GLEANINGS. What a grand world this would be if all men were like A. J. Cook, A. I. Root, and Master W.! I should like to meet and greet you all, but this may not be now. I can only say, God bless you all. M. A. KELLY.
Milton, W. Va., May 6, 1888.

I think all the Christian readers of GLEANINGS must rejoice with you in the precious contents of "Our Homes." J. MEKEEL.
Poplar Ridge, N. Y.

GLEANINGS LIKE A CLASS-MEETING.

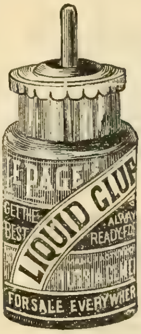
Please find inclosed one dollar for GLEANINGS, 1888. I could not think of doing without it. It's like going to class-meeting. There are many grand experiences, especially the practical, from such men as France and a host of others I can't mention. I had the pleasure of shaking hands with Prof. Cook at our farmers' institute. I wish we had lots of such men to instruct the people. I tell you, friend Root, I appreciate the contributions of these men. WM. COX.
Viroqua, Vernon Co., Wis.

KIND WORDS FROM NEVADA.

Friend R.:—You must excuse me for not writing to you before, but I have been so busy I have had but little time to write, and *you* know how busy we all have to be at this season of the year. The goods arrived all right and in good order; and the way they were packed ought to please any person. I forgot the separators, and so I shall have to get them here. They will cost just double what you charge for them. I have several orders, but the people here know nothing about movable-frame hives, and for that reason it takes time to get them introduced. They all give me credit for the nicest put-up honey; and if I can sell a few hives and bees I think I shall be able to do pretty well in time.
Reno, Nevada, Apr. 24, 1888. E. A. MOORE.

NEW AND SECOND-HAND FOUNDATION-MILLS AT REDUCED RATES.

We have on hand the following fdn. mills that we desire to dispose of; and to do so we quote these special prices: One 14-inch mill, made about 2 years ago, but has never been used. This mill makes fdn. with the round, or improved cell. It is as good a mill as we could make a year ago; but with our new machine for cutting the rolls we do much better work now, hence we offer this mill at the very low figure of $25.00. Regular price $40.00.
A. I. ROOT, Medina, O.



LEPAGE'S LIQUID GLUE.

Few words of praise are necessary for this excellent article, so widely known and advertised. It is one of the best of liquid glues. Always ready for use. Mends every thing. We have 4 different-sized packages.

Glass bottle like the adjoining cut for 10 cts.; 75 cts. for 10; $7.00 per 100. Half-gill tin cans with screw cap, and brush fastened to inside of cap, price 15 cts. each; $1.10 for 10; $10.50 per 100. This latter can be sent by mail for 10c. extra for postage and packing.

Gill tin can with brush, 20 cts.; 10 for $1.50; 100 for $14.00; ½-pint tin cans, no brush, 25 cts.; $2.20 for 10; $21.00 per 100.

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A. I. ROOT, Medina, O.

A Four-Color Label for Only 75 Cts. Per Thousand!

Just think of it! we can furnish you a very neat *four-color* label, with your name and address, with the choice of having either "comb" or "extracted" before the word "honey," for only 75 cts. per thousand; 50 cts. per 500, or 30 cts. for 250, postpaid. The size of the label is 2½ x 1 inch—just right to go round the neck of a bottle, to put on a section, or to adorn the front of a honey-tumbler. Send for our special label catalogue for samples of this and many other pretty designs in label work.

A. I. ROOT, Medina, Ohio.

HONEY COLUMN.

CITY MARKETS.

CHICAGO.—*Honey.*—Market quiet; few sales. Choice honey, 15c in one-pound sections. Extracted, without particular change—6@8c. *Beeswax*, 23. Market is assuming a summer aspect.

R. A. BURNETT,
May 8. 161 So. Water St., Chicago, Ill.

ST. LOUIS.—*Honey.*—The receipts are more liberal than for some time past. The demand is also improving, but the prices are very hard to advance. We quote, fair honey, 6c; good fair, 6½; choice, 7@7½. *Beeswax*, in demand at 22½ to 23c. The prospects for an active business very good.

D. G. TUTT GROCER CO.,
May 10. 206 N. Commercial St., St. Louis, Mo.

CINCINNATI.—*Honey.*—Nothing new to report. Demand is slow for comb honey, and prices nominal. It sells at 14@16c for best, in the jobbing way. There is a fair demand for extracted honey in all shapes. It brings 4@8 cents on arrival.

Beeswax.—Demand is good. It brings 20@22c for good to choice yellow on arrival.

CHAS. F. MUTH & SON,
May 9. Cincinnati, O.

DETROIT.—*Honey.*—Market continues dull; 14@15 for best comb honey in one-pound sections; supply large for the time of year. Extracted, 9@10.

Beeswax, 23@24.

Bell Branch, Mich., May 10. M. H. HUNT.

BOSTON.—*Honey.*—No change in prices. Very slow sale.

BLAKE & RIPLEY,
May 10. 57 Chatham St., Boston, Mass.

COLUMBUS.—*Honey.*—Market is very dull; no demand; choice white in one-pound sections, 12½@15. Dark, 10c. Extracted, 8@10; very little selling.

EARLE CLICKENGER,
May 9. 119 E. Town St., Columbus, Ohio.

ALBANY.—*Honey.*—Market quiet; no stock; no demand.

H. R. WRIGHT,
May 9. 328 Broadway, Albany, N. Y.

SPECIAL NOTICES.

PLENTY OF GLASS HONEY-PAILS AGAIN.

The trouble with the glass-blowers has been adjusted, and we are again supplied with Glass Honey-Pails, both the screw-top pails and the Oaken Bucket. The prices will be the same as heretofore, which are as follows.

	Each	10 rates	100 rates	1000 rates.	Wght. of 100
½ lb.	5 cts.	40 cts.	$3.50	$32.50	55 lbs.
1 "	5 "	45 "	4.00	37.50	75 "
1½ "	6 "	55 "	5.00	47.50	95 "

MAPLE SUGAR STIRRED DRY.

We have a nice lot of this article which we can sell as follows: Extra choice, 13c per lb.; good quality, 11c. We also have a good stock of 9 and 10 cent cake maple sugar, ½c less in 50-lb. lots; 1c less in bbl. lots of 300 lbs. Choice maple syrup in 1-gallon cans, $1.10 per gallon; $10.00 for 10 gallons.

A. I. ROOT'S NEW BOOK, "WHAT TO DO, AND HOW TO BE HAPPY WHILE DOING IT."

I need not tell the readers of GLEANINGS what this is about, because most of you have read more or less of it in the chapters which have appeared in GLEANINGS. Even if you have read it, however, I think the book will be worth half a dollar to you; in fact, I use it a great deal myself as a book of reference. I want to see what I have done—what experiments I have made; what season of the year I sowed seed, put out plants, etc. It is not yet bound in cloth, but it has been out only a couple of weeks. In paper covers, price 50 cts. If wanted by mail, add 8 cts. extra for postage. Two copies will be sent for 80 cts.; three for $1.00; five or more, 30 cts. each, in all cases adding postage as above, when wanted by mail. The book contains 181 pages and 82 engravings.

PERFORATED ZINC FROM OUR NEW MACHINE.

We have seen samples of most makes of zinc on the market, and can assure you that, for all the uses to which this article is applied, we consider that made on our new machine equal to any, and our prices speak for themselves. They are as follows:

Full sheets of perforated zinc, 28x96 in. .	$1 20	each.
Unbound Zinc Honey-boards, 14x19⅛	1 20	for 10.
Wood-bound Zinc " 14⅛x19⅛ . .	1 50	"
Wood-bound break-joint Honey-boards, 14⅛x19⅛, 10-frame, ...	1 60	"
Wood-bound break-joint Honey-boards, 14⅛x19⅛, 9-frame	1 60	"
Zinc strips, one row holes, ¾x19⅛	80	for 100

Less than 5 honey-boards, any style, 2c each more; 20 or over, 5 per cent off; 100 or more, 10 per cent off. Two or more sheets, or 200 strips, 5 per cent off; ten or more sheets, or 1000 strips, 10 per cent off. Discount to dealers who advertise our zinc, 25 per cent.

Please remember, in ordering break-joint honey-boards as shown on page 407 of this issue, to specify whether you want them for 9 or 10 frame spacing. If you do not specify, 10-frame will be sent. Remember, also, that our wood-bound zinc honey-boards have a ¼-inch bee-space on both sides.

CHENANGO VALLEY APIARY.
HEADQUARTERS IN N. Y. STATE

For superior yellow ITALIAN QUEENS. In order to introduce my strain of bees, I offer one-frame nuclei, with untested queen, for $1.50 each, Langstroth frame; untested queen, $1.00; select tested, $2.00. Reference if desired. Send stamp for reply, to A. I. Root, or National Bank of Sherburne. Send for free circular. MRS. OLIVER COLE,
6tfdb Sherburne, Chenango Co., N. Y.

FOR SALE.

One saw-table, Root's pattern, made of straight-grained hickory, 3½x3½, with mandrel and saws; 15 ft. of two-inch leather belt. Every thing painted, and as good as new. Also one *comb-foundation mill*, ten-inch, good as new; made by A. I. Root. Boards and tanks thrown in. **A. L. LIGHT,**
Fort Graham, Hill Co., Texas.

BEES AND NUCLEI CHEAP.

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If you want No. 1 box workers, don't fail to send for my circular. **W. C. GILLETT,**
9-16db **Le Roy, N. Y.**

GLEANINGS
IN
BEE CULTURE.
DEVOTED·TO·BEES·HONEY·&·HOME·INTERESTS.
F.A. Whiting

Vol. XVI. **MAY 15, 1888.** **No. 10.**

TERMS: $1.00 PER ANNUM, IN ADVANCE; 2 Copies for $1.90; 3 for $2.75; 5 for $4.00; 10 or more, 75 cts. each. Single number, 5 cts. Additions to clubs may be made at club rates. Above are all to be sent to ONE POSTOFFICE.

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WHO INVENTED THE FRAME HIVE?

A VEXED QUESTION SETTLED.

IN GLEANINGS for April 15 you mention Cheshire's book; and you quote from it, page 295, " . . . . until Dr. Dzierzon, of Carlsmarkt, invented in 1838, and made public in 1845, *frames* to hang within a box or hive-body, which was manipulated from its side . . . . " This statement is incorrect. Dr. Dzierzon invented the first practical bee-hive, but he never used a frame, but comb-bars only. The bees build the combs to this bar and to the walls of the hive. His hives were at first of different styles, because he adjusted the bars into his old hives; so he used, about 50 years ago, shallow boxes, forming the so-called Christ's magazine hive, with these comb-bars. This hive was quite similar to Heddon's hive, and manipulated from above. To take out any combs, it was necessary to cut them loose from the hive walls. It is easily seen, that this is somewhat difficult, if the hive is manipulated from above. This is the reason why Dr. Dzierzon has abandoned this kind of hive, and adopted hives manipulated from the side.

It has been proven, many times, that the first hanging-*frame* hive was invented in 1851 by Langstroth. A very short time later, Baron Berlepsch, of Germany, changed Dzierzon's bars to frames. It is true, without doubt, that he invented his frame quite independently of Langstroth. Berlepsch did not change the manipulation from the sides, and these hives are still in use in Germany. Dr. Dzierzon still recommends using the comb-bar; and because nobody in Germany or elsewhere is on his side in this respect, he conceded, finally, that frames may be used with advantage in the surplus chamber for extracting, but none in the brood-chamber.

Gravenhorst invented a frame hive (about 1865) in which every single frame could be taken out at pleasure after the hive is reversed; and many bee-keepers use this hive with success. Some other hives are recommended, which are manipulated from the back side; but the side-opening hives are still in general use.

Within the last few years I have written articles for different German bee-papers, in which I explained the advantages of our American hives and management; this caused Dr. Dzierzon to advise us not to use a hive with frames to be manipulated from above, because by taking out the first frame the bees would be rolled and killed (!) ; and other bee-keepers had other objections. Nevertheless, our hive system is gaining more friends in Germany. Dr. Dzierzon is the founder of scientific bee-keeping; and his hive, the first practical one with movable *combs*, caused a new start in bee-keeping, and nobody can honor this man more than I do; but to call him an inventor of a frame hive is just amusing, while he used every occasion to speak and write *against* frames. L. STACHELHAUSEN.

Selma, Tex., Apr. 22, 1888.

When we gave insertion to the above quotation, we believed it to be correct, and did not take time to investigate authorities. Since receiving your communication we have made quite a thorough investigation, not only through the pages of the old *A. B. J.*, but in some of the oldest books in our library on bees. So far as we can ascertain, your statements in reference to the Dzierzon hive are correct. Dzierzon used only top-bars. These were supported in horizontal grooves made in the sides of the hive, half an inch from the top. Whenever it became necessary to remove a comb, the side attachments had to be severed before it could be taken out, as the bees would necessarily, in the absence of side-bars, fasten the sides of the combs to the hive. Mr. Cheshire is correct, however, so far as dates are concerned. He is in error in using the word "frames" instead of "bars." Those of our readers who are fortunate enough to possess a copy of the first number of the old *A. B. J.* will find interesting matter on this subject from the pen of that scholarly editor, Samuel Wagner, page 14. See old editon of Langstroth's work on the honey-bee, and also Prof. Cook's Manual of the Apiary.

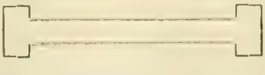
Since the above was in type, the following article has come to hand from that veteran bee-keeper, Charles Dadant. So thoroughly conversant is he with the literature on bees throughout the world that his article will be read with unusual interest.

THE INVENTION OF MOVABLE COMBS AND MOVABLE-FRAME HIVES.

SOME VALUABLE INFORMATION FROM CHARLES DADANT.

HAVING seen, in GLEANINGS for April 15, the quotation of a mistake made by Mr. Cheshire, who wrote that Dzierzon was the first inventor of the movable-frame hive, I desire to redress it.

The bee-keepers of Greece seem to have been the first to use movable-comb hives; for Della Rocca, in the second volume of his *Traite sur les Abeilles*, Paris, 1790, writes, page 465: "The method of the Greeks of old, from whom it has gone to Germany, is now practiced only in the Candia Island. The hives are made of willow; their upper part is furnished with several small bars, separated from each other, the whole being covered, to shelter the bees and prevent a current of air. These ekes are made in such a way that bees build a comb under each bar, and every comb is separated from the others. With this method, the bee-keepers, just before swarming time, visit their hives, take out the bars loaded with combs, and, when they find queen-cells already made, and containing sealed larvæ, they put several of these bars, with their combs, in several other hives, making more or less swarms, according to the prospect of the season." Then, after giving the exact dimension of these bars, and of the distance to be preserved between them, Della Rocca describes the beveled under side of the bars, which induces bees to build their combs straight.

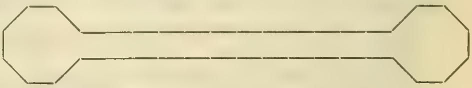


Della Rocca, having tried these movable-comb hives during his stay in France, improved them by adding, at the end of each bar, a double enlargement to keep them at the proper distance from one another.

He gives, also, at the end of his third volume, the engraving of a two-story bar hive made of boards, and opening at top and side.

In 1838 Dzierzon used bar hives, which opened at the top, like those of the Greeks; but as the first comb was difficult to remove without breaking, for it was fastened by the bees to the sides of the hive, he invented a side-opening case, in which the bars were supported by slats, nailed inside a few inches below the top, to allow the placing of small thin boards, with which he covered the spaces between the bars.

In 1845, Berlepsch, after a visit to Dzierzon, became enthusiastic about these bar hives, and soon after he improved them by reinventing the enlargement described by Della Rocca, and thus modified.



Yet, being tired of the difficulties encountered in the handling of these movable combs, he labored to invent movable frames, and succeeded in 1851, 1852, for he writes: "Till 1851 I had the misfortune of using movable-comb hives, so miserable that my work was tiresome or delayed. . . . . . At last, after seven years of silent work, I came to the front in the years 1853 and 1854, with my letters on bee-keeping, having then solid ground under my feet."

In the same book, Berlepsch continues: "The frames were welcomed with great rapture on every side, but Dzierzon and Kleine objected by several feeble arguments. Later, Dzierzon accepted them for the surplus boxes, not for the brood-chamber." —*Die Biene*, 2d Ed., 1868.

The frame hives of Berlepsch, like the bar hives of Dzierzon, have their combs parallel to the entrance, and open at the rear by doors, like cupboards. They were adopted as standards by bee-keepers of Germany and Italy. They are high, divided in two or more stories. But some bee-keepers, in both these countries, began to try hives opening at top, as invented by Langstroth, and the comparison proves so much in favor of the latter that I hope to see, sooner or later, the German standard yield to the American, as I have prophesied for nearly twenty years it would.

While Dzierzon and Berlepsch, in Germany, were working to find a practical movable-comb hive, Munn, in England, Debeauvoys, in France, Langstroth, in the United States, labored toward the same end, and it is Mr. Langstroth who became the winner in the race. Just a few months before Berlepsch's invention, in 1851, he took a patent for his hive. The inventions of Munn and Debeauvoys are already forgotten, and the differences existing between the Berlepsch and Langstroth hives are so manifest that nobody can have the least doubt that the one suggested the other; for the only point of resemblance is the space between the frames and the sides of the hive; space indispensable to the removing of the frames, and to which Dzierzon has always been, and is even to-day opposed. F. Huber also, nearly 100 years ago, had invented, and used for his studies, a movable-frame hive, which was known under the name of "leaf hive," and modified since by a number of bee-keepers of both continents.

The closed-end Quinby is an outgrowth of the Huber hive. Although this hive is praised by some bee-keepers, I dare predict that it never will supersede the Langstroth, on account of several defects. I write with a full knowledge of what I say, having tried it and seen it manipulated by some of its partisans. As the combs in this hive can not be more or less distanced, since the frames always touch each other, it is often impossible to change their order in the hive, or to introduce combs from another colony, if there is the least irregularity in them. When this change of order takes place it often happens that a layer of propolis, put by the bees between the frames, meets another layer of propolis just opposite. Then this propolis has to be scraped before closing the hive.

When the closed ends are brought together, it is about impossible, especially when the colony is populous, not to pinch a few bees, which complain and arouse a number of angry sisters. During my work with a closed-end hive, bought from Mr. Quinby, I have killed a good queen between two frames, and concluded that such hives would never do for me. CHAS. DADANT.

Hamilton, Ill., May 1, 1888.

USE OF SMOKE IN SETTING BEES FROM THE CELLAR.

SOME INTERESTING FACTS FROM G. M. DOOLITTLE.

I DO not know that I can tell the readers of GLEANINGS any thing that will be more interesting to them than to tell them just what I have been doing for the past three or four hot days, which were the first warm days we have had this year. I know that this will be too late for any of you to put the same thing in practice this spring; but as it is fresh in my mind I shall have to tell it now or it will be forgotten, without doubt. The first thing to be done, when warm weather is delayed till about May, is to get the bees out of the cellar; so when the morning of the second warm day came I went to the cellar and picked up a hive as carefully as I could, and carried it to the summer stand; but in spite of my care, the bees thought best to come out on the road, and then such a stinging and hissing as I had to endure while I carefully lowered the hive to its stand was not easy to bear. If the bottom-boards to my hives were nailed fast, this could be easily overcome; but as I prefer them loose for many reasons, they are not. It did not take me long to remember that I used to have a little smoke with me on such occasions, so I went to the shop and got my wheelbarrow that has springs under it, and the smoker, setting them near the outside door of the cellar. I then took a hive and set it on the wheelbarrow, and immediately blew a few puffs of smoke under the hive, just enough to set the bees to roaring a little, when I could wheel them to their stand, set them on the bottom-board, and regulate the entrance blocks before any of the bees could come out, so that, after this, I did not get a single sting in setting all the rest out. One other thing that a little smoke does is, it makes the bees come out more slowly, so that they do not rush out pellmell as they will sometimes on a warm morning, and thus much of the mixing we read about is avoided.

ROBBING STOPPED PROMPTLY.

As a part of my bees were wintered outdoors, it was but natural that these should be looking around to see if there was not some honey they could get on this warm morning; so as a few of my small queen-rearing colonies were light last fall, and still lighter in bees this spring, one strong colony went to robbing one of these little ones. I contracted the entrance to the little colony, so that but one bee could pass at a time, so that the honey could not all be carried off before night, and left them. At night I carried them back to the cellar. The next day this same strong colony overcame another little one from the cellar, and I feared the strong one was going to do about as it had a mind to, when the thought struck me that, when night came, I could carry this to the cellar, and leave it for a day or two, and thus have it out of the way. At night I took this, and also the little one they were robbing, to the cellar, and the next day I went in and took away all of the combs that the little ones could not care for, and placed the colony to one side of the hive. At four o'clock I set the little ones on their stands again, but fixed their entrance at the opposite end of the hive from what their combs were, as I told the readers of GLEANINGS last summer, when I had such a time of robbing in hot weather. They seemed well satisfied with this arrangement, and the next day I set the strong one out again. As soon as out they went for the little ones again, and it was with pleasure that I watched these little fellows catch each bee as it would alight, and pretend to sting it, till the robber was glad to retreat. Toward night all of the weaker colonies were treated as those two, and now I have no further trouble from robbing.

UNITING IN THE CELLAR.

All the very weak ones, four in all, were not put out till I had united them, and I find the cellar a very good place to unite bees before they have been set out at all. In this way all have the same scent, so there is no quarreling; and by leaving them over night in the cellar they become as one colony before morning. This item I think quite a good deal of, when used in the following manner: In the spring some one is almost always in a hurry for queens before I can raise any or even get my bees out of the cellar; and as I can almost always get quite small nuclei wintered in the cellar to March and April, I can use these queens, and unite the bees, as I have given above, into one colony, or make as many of them as I choose. As some do not like these queens from small, or, as often called, "dwindled colonies," I send the queens which are bought from the colonies wintered outdoors, and then introduce those from the cellar to the colonies made queenless. It at first bothered me to find the queens in the cellar, as the light used is not so strong as daylight; but after a little I learned to place the light on something that was tall and slim, so that, by holding the frame to be examined, on the opposite side of the light, I could bring the frame close up to it; and by waving it so that the strength of the blaze would touch all points, the queens were easily found. It is also best to have the light on the further side of the hive from where you stand, so if any bees take wing they will go from you toward the light, and not get on your clothing. Bees on one's clothing in the dark are not pleasant, as they will almost always get where you will pinch them, when they are sure to sting. This uniting of colonies in the cellar, two or three weeks before they are set out, seems to work to their benefit, rather than to their injury; for it sets them to breeding, so that, by the time they are set out, they will have brood about hatching, or about to hatch, and this in time to take the place of the bees which die of old age. However, I should not want them to breed earlier than three weeks before setting out. G. M. DOOLITTLE.

Borodino, N. Y., May 1, 1888.

O. O. POPPLETON IN CUBA.

HE TELLS US WHAT IS BEING DONE TO INTRODUCE ENLIGHTENED BEE CULTURE THERE.

IT may be interesting to our readers to know that our friend O. O. Poppleton, recently of Hawks Park, Florida, is now located in Cuba, with Mr. Dussaq, Apartado 278, Havana. Mr. Dussaq has an immense bee-ranch, and Mr. Poppleton is to take charge of it, as Mr. Osburn, who formerly held this position, is about to leave for the United States. We wrote to Mr. Poppleton that we should be glad to hear from him in his new locality. In a private letter he replies, and we give an extract from it below:

Friend Root:—We have been in Cuba only a little over two months. What information I yet have of bee-keeping here has been obtained from Mr. Osborn; and his principal work while in Cuba has been in building up apiaries more than in running one already established, so you see we are working a partially untried field. So far we are very well pleased with the outlook, both as to bee-keeping and to the comforts of living. In this last respect especially we have been very agreeably surprised. I am also well pleased with the kindness and friendliness of our neighbors, and with all whom we have dealings with. Owing to the fact that the honey crop is obtained during the two coldest months of the year, it has been found best to locate the apiary in a valley, and to closely surround it with bushes as a windbreak. This makes it impossible to obtain a good view of the apiary; and both Mr. Dussaq and myself have looked the ground over, and decided that it will hardly pay to attempt it.

I know of but three movable-comb apiaries in Cuba. One of them, belonging to Mr. Casanova, contains between 200 and 300 colonies, and is situated some 30 miles east of here; one now starting in charge of A. J. King, near the center of the island, and this one where we are located, consisting at present of about 400 colonies, with empty hives and shed-room for 515 in all. When nearly all the hives are filled we shall probably have one of the largest and best-fitted movable comb apiaries in the world. I am free to praise it what I think is right, as the planning and work have so far been Mr. Osborn's and not mine.

By the way, won't it pay you largely in the matter of health to take a month next winter from your business, and take a flying trip to Florida and down here? I think it will. O. O. POPPLETON.

Havana, Cuba, Mar. 31, 1888.

Friend P., we are greatly obliged to you; but after you get to work a little more we want you to give us more of the details—write them out fully. We all know that you have a remarkably happy faculty of telling us all about any thing we want to know. I know there are lots of your old bee-friends who would be very glad indeed to hear about bee culture in Cuba.

HONEY STATISTICS

FROM ALL PARTS OF THE UNITED STATES.

In order to read understandingly the reports given below, it will be necessary to observe the following points: First, the State is given; then next in their order are the names of the reporters, with their respective postoffices. To indicate locality, the usual abbrevations are used—N., S., E., and W., for north, south, east, and west; N. E. for north-east, etc. The letter C indicates the word "central;" E. C., east central, etc. In the following list, the first figure represents the month, and the second figure the date at which the report was rendered. The small italic letters, a, b, c, d, etc., indicate the answers to the questions propounded in questions a, b, c, etc., just below

WE herewith present our readers with the second installment of statistical reports. As this is a large country, those questions which would apply to the Northern States would not be applicable to those in the South. You will observe, therefore, that we have prepared two sets of questions. The resident bee-keepers in the North answer the first set, and those of the South answer the second set. Those who are located on or about the dividing line sometimes answer all of the questions. The questions which our correspondents answer are as follows, and the replies are indicated by the corresponding letters in italics:

QUESTIONS ANSWERED BY REPORTERS LOCATED IN THE NORTHERN STATES.

(*a*) *What per cent of your bees have wintered?*

(*b*) *What per cent of the bees in your locality do you estimate have wintered?*

(*c*) *What method of wintering, in your locality, seems to be preferred—that is, cellar wintering, or wintering on summer stands?*

(*d*) *What are the prospects for a crop of honey this coming season, at the time of writing?*

QUESTIONS ANSWERED BY REPORTERS LOCATED IN THE MIDDLE AND SOUTHERN STATES.

(*e*) *What per cent of an average crop of honey has been secured in your locality, as nearly as you can estimate up to the time of your writing? You may not yet have secured your full crop, but has it averaged as well as it usually does, so far?*

(*f*) *From what source was it gathered?*

ALABAMA.

W. P. W. Duke, Nettleborough. S. W. 4-30.
e. Full crop. f. Principally from poplar and persimmon.

J. M. Jenkins, Wetumpka. C. 5-1.
d. About as good as usual; better than last 2 years. e. From various sources, but probably more from poplar (tulip-tree) than any thing else.

ARIZONA.

J. L. Gregg. Tempe. C. 4-24.
e. From 100 hives, 100 gals. to date; about as usual. f. From a great variety of flowers. Wild desert currant, batta mota, willow, yellow blossom in the foot-hills, and alfalfa.

ARKANSAS.

A. C. Behrens, Malvern. C. 5-1.
e. No surplus; bees just starting in supers. f. From huckleberry and sweet gum.

CALIFORNIA.

W. W. Bliss, Duarte, L. A. Co. S. E. 4-25.
e. But little honey yet; season not open yet for extracting. Average, good—above what it usually is. f. From fruit-bloom, orange-trees, buck-thorn, etc.

J. P. Israel, North San Diego. S. 4-30.
e. Not over 15 or 20 per cent has yet been gathered. The flow has not been as good as usual at this time, on account of lack of late rains. f. So far, all black sage.

R. Wilkin, Los Angeles. S. W. 4-29.
e. We seldom get much surplus honey until after the middle of May. f. Various wild flowers, but mainly alfilarie: purple sage is about commencing to bloom.

Wm. Muth-Rasmussen, Independence. E. 4-25.
e. No honey will be harvested here until June. Bees breeding rapidly, and swarming.

G. W. Cova, Downieville, Sierra Co. N. E. C. 4-25.
d. About 25 per cent. e. Fruit-bloom and apple.

COLORADO.

Mark W. Moe, Denver. N. 5-5.
a. 66⅔. b. 95. c. A few in cellars, but mostly on summer stands; also some in bee-houses.

CONNECTICUT.

Daniel H. Johnson, Danielsonville. E. 5-2.
a. 80. b. Perhaps 70. c. Mostly on summer stands. d. Bees in healthy condition, but the severity of the spring weather is not encouraging.

L. C. Root, Stamford. S. W. 5-1.
a. 75. b. About 75. c. On summer stands. d. The crop must be light, as the bees are in poor condition, from the effect of our terrible storm in March.

R. M. Wilbur, New Milford. W. 4-23.
a. 95. b. From 90 to 95. c. Summer stands. d. Backward spring, can hardly tell yet.

DAKOTA.

Thos. D. Lewis, Cando. N. 4-25.
a. 99. b. No bees kept by any one within 20 miles of here.

FLORIDA.

John Y. Detwiler, New Smyrna. E. C. 5-1.
e. On the coast, principal sources of honey not yet in bloom. In the interior of Volusia Co. half a crop; harvested. f. Sources orange, spruce, pine, andromeda, or stool-root, gallberry, and various spring flowers; grape and cosina now in bloom. South of New Smyrna, bees secure from one to two pounds per day. Saw-palmetto not yet in bloom.

W. S. Hart, Hawks Park. E. C. 4-24.
e. Probably about 80, or a little less than an average. f. Maple, yellow jessamine, willow, oak, and orange.

J. L. Clark, Apalachicola. W. 4-24.
e. I think the crops will average double the preceding year. I am satisfied that ours will. f. Natural, red maple, willow, black and tupelo gum; the latter our choice flow, which is very rich in nectar.

GEORGIA.

J. P. H. Brown, Augusta. E. C. 4-26.
e. The honey-flow up to date is fully 20 per cent above an average, and of extra quality. f. Mostly from the poplar, liriodendron tulipifera.

T. E. Hanbury, Atlanta. N. 4-25.
No honey yet. Fruit-bloom was injured or killed by frost and cold. Have no honey source except clover, blackberries, and poplar, which is limited. It doesn't pay to keep bees in Northern Georgia.

R. H. Campbell, Madison. C. 5 4.
e. Full average crop of honey. f. Poplar, maple, persimmon, blackberries, hall bushes, willows, and wild clover. These are good honey-plants.

Walter McWilliams, Griffin. W. C. 5-4.
e. 25. Its average is far superior to the last four years. f. Blackberry, dewberry.

ILLINOIS.

Mrs. L. Harrison, Peoria. C. 5-5.
a. 75. b. 60. c. Cellar. d. Moderate.

Dadant & Son, Hamilton. W. C. 4-21.
a. About 92. b. About 60. c. Outdoor wintering, but we succeeded best in the cellar this year. d. Fair.

C. C. Miller, Marengo. N. 5-5.
a. Too early to tell. Perhaps 45. b. 45. c. Cellar. d. Very cold and backward.

Frank H. Howard, Fairfield. S. 5-4.
e. Average better than usual. f. Fruit-bloom.

F. W. Goodrich, Bloomington. C. 4-24.
a. 25. b. 25. c. Most practical bee-keepers prefer cellar wintering. d. Very poor.

Wm. Hutchinson, Benton. S. E. 4-27.
b. 33⅓. d. Very poor. Clover nearly all killed. f. A small quantity from fruit-bloom.

INDIANA.

T H. Kloer, Terre Haute. W.C. 5-1.
a. 90. b. 60 to 70 c. Outdoors mostly. d. Not promising.

J. A. Burton, Mitchell. S. C. 5-4.
a. 89. b. 90. c. Summer stands. d. Good yield from fruit-blossoms, so far. Poplar promises good; white clover bad.

I. R. Good, Nappanee. N. 5-4.
a. 74. b. 50. c. On summer stands. d. Not flattering.

Mary E. Harding, Indianapolis. C. 4-23.
a. 94. b. 75. c. Wintering on summer stands

Mrs. A. F. Proper, Portland. E. C. 5-7.
a. 85. b. Can't estimate. 3. Winter on summer stands. d. Very good.

IOWA.

J. M. Shuck, Des Moines. C. 4-30.
a. About 95. b. About 25, c. On summer stands. d. Not good. White clover seems to have been killed.

Z. T. Hawk, Audubon. W. 5-4.
a. 96. b. 60 or 65. Losses from spring dwindling have been very heavy. c. Probably two-thirds winter in the cellar. d. Copious rains in last 24 hours materially brighten the prospect.

Oliver Foster, Mt. Vernon. E. 5-3.
a. 80 per cent. b. Just 72 per cent, of about 500 heard from. c. Cellar. d. Good.

Eugene Secor, Forest City. N. 5-1.
a. 85. b. 80. c. Cellar exclusively. d. Good, except spring is backward.

J. W. Bittenbender, Knoxville. S. E. 4-30.
a. 92. b. 35. c. Cellar and cave. d. Good.

KANSAS.

J. B. Kline, Topeka. E. C. 5-4.
a. 100. b. About 98. c. Cellar preferred, though either does well. d. Very fair.

B. F. Uhl, Boling. E. 5-3.
a. 80. b. 80. c. Summer stands. d. Good.

J. E. Stanley, Wichita. S. C. 5-1.
e. 30. Better than usual. f. Elm, soft maple, and fruit-bloom.

KENTUCKY.

J. P. Moore, Morgan. N. 4-24.
a. 97. b. 95. c. Wintering on summer stands. d. Only tolerably good. White clover is not very thick in this locality.

John S. Reese, Winchester. C. 5-1.
e. Fruit, full bloom, and yielding well as usual. f. No surplus yet.

D. F. Savage, Hopkinsville. S. W. 5-1.
a. 100. b. Black bees, in "gums," 60. Of bees in L. or Simp. hives, 95. c. Winter on summer stands. d. Red clover much injured by last year's drought. White clover promises well. e. Fine yield from fruit and forest bloom, above the average. No surplus yet. f. White clover just opening. Upper stories now go on.

LOUISIANA.

J. W. K. Shaw, Loreauville. S. C. 4-25.
a. 100. b. Blacks, and in boxes, have died out badly. e. Secured a fair average from china-tree. f. The crop from white clover is now being gathered.

MARYLAND.

S. Valentine, Hagerstown. N. W. 4-27.
e. Very backward spring. Bees have carried very little pollen, and no honey. f. Good, if weather will permit bees to fly.

S. P. Roddy, Mechanicstown. N. C 4-30.
Not more than 5 per cent. It has averaged just as well as it usually does, so far. It was secured from maple and fruit-blossoms.

MASSACHUSETTS.

J. E. Pond, No. Attleboro. S. E. 4-21.
a. 100. b. Fully 75. c. On summer stands, although that of special depositories is to some extent in use. d. Very good indeed.

E. W. Lund, Baldwinsville. N. C. 5-2.
a. 75. b. As far as heard from, not 50. c. About equally divided. d Prospects are good, but bees are backward for the season. No blossoms yet.

Wm. W. Cary, Colerain N. W. 4-21.
a. 95. b. 50. I estimate from my locality. c Cellar wintering safest and cheapest. d. Rather discouraging.

MICHIGAN.

George E. Hilton, Fremont. W. 5-3.
a. Spring cold and backward; have allowed two to starve; 95. b. 90 c. Summer stands in chaff hives. d. If we can get our bees strong in time for clover, good.

James Heddon, Dowagiac. S. W. 4-20.
a. 66⅔. b. Between 50 and 66⅔. c. About equal, of each. d. Poor, so far as can now be guessed at.

R. L. Taylor, Lapeer. E. 5-3.
a. 85. b. 50. Many have lost all. c. Cellar wintering. d. Very poor. White clover is greatly injured by drought.

H. D. Cutting, Clinton. S. W. 5-4.
a. 100. b. From 75 to 80. c. About equally divided. d. Fair.

T. F. Bingham, Abronia. S. W. 4-24.
a. 98½. b. Loss is light. c. Both cellar, and chaff-packed. d. Clover is injured by frost; and unless the season retards the clover-bloom as it does breeding, the crop will be injured.

MINNESOTA.

Bright Bros., Mazeppa. E. 4-25.
a. 94½. b. 75. c. Cellar wintering. d. Good.

W. Urie, Minneapolis. E. C. 5-4.
a. 90, and very strong. b. I am safe in saying that only 75 per cent in Northern Minnesota are alive. d. Good.

J. H. Johnson, East Chain Lakes. S. C. 4-28.
a. 100. b. No complaints. c. Cellar. d. I should say good.

D. P. Lister, Lac qui Parle. W. C. 4-23.
a. 92. b. 50. c. Cellar. d. Could not say.

W. W. Hamilton, Jackson. S. W. 4-23.
a. 100. b. 95. c. Cellar wintering; wintering on summer stands is not often tried on the Northwestern prairies.

MISSISSIPPI.

Oscar F. Bledsoe, Grenada. N. 4-24.
e. Have taken 40 or 50 lbs. each from some hives. I can get 2 or 3 times that much more.

W. A. & E. E. Montgomery, Pickens. C. 4-25.
e. We have an average honey-yield up to date. f. A little from willow, but the greater part of it from poplar.

O. M. Blanton, Greenville. W. C. 4-30.
a. 90. e. No honey. Cool backward spring. Bees are gathering from a dozen varieties of flowers. Will handle my apiary myself this year.

MISSOURI.

Jno. Nebel & Son, High Hill. E. C. 5-1.
a. 96. b. 25 per cent in the hands of careless farmers; 50 per cent in the hands of those more careful. c. We prefer to winter in cellar. Most bees in our locality wintered on summer stands. d. Prospects good.

S. E. Miller, Bluffton. E. C. 5-1.
a. 96. b. 20 to 66⅔. c. Mostly on summer stands. d. Strong colonies are whitening their combs.

E. M. Hayhurst, Kansas City. W. C. 4-28.
e. The honey-flow is better than usual at this date. The bees are gathering a little more than they consume, in spite of unfavorable weather. f. Apple-blossom.

Chas. L. Gough, Rock Spring. E. C. 4-23.
a. 20. b. 10. c. Cellar, or some place to protect them from the sudden changes and cold winds. d. Unfavorable.

James Parshall, Skidmore. N. W. 4-21.
a. About 45. b. About 25. Some have lost all. c. On summer stands. d. Good, if we have any rain.

MAINE.

John Reynolds, Clinton. S. E. 5-9.
a. In 4 apiaries, 88. b. Outside, we estimate 50. c. In the cellar. d. As good as usual we think.

NEBRASKA.

Jerome Wiltse, Falls City. S. E. 5-2.
a. 80. b. 80. c. Cellar. d. Unfavorable.

F. Kingsley, Hebron. S. C. 5-4.
a. 75. b. 75. c. Cellar wintering by those who understand it, although 90 per cent are left on summer stands. d. Good.

J. W. Porter, Ponca. N. E. 4-20.
a. 100 per cent in cellar; 8 per cent on summer stands. b. 65. c. Cellar. No method of packing on summer stands has been successful in this locality.

J. M. Young, Rock Bluffs. E. 4-30.
a. 75. In chaff hives; all dead in single-walled hives. b. 50. c. Cellar wintering, with experienced apiarists; inexperienced, summer stands. d. Very favorable for the linn bloom, but white clover nearly all killed.

NEVADA.

E. A. Moore, Reno. W. C. 4-30.
c. We winter on summer stands, in this section. d. Prospects for a good crop are very flattering. e. It has averaged better than usual. f. It was gathered from fruit-blossoms.

NEW HAMPSHIRE.

J. A. Bachelder, Keene. S. 5-3.
a. 70. b. 60, and all very weak. c. Summer stands.

S. F. Reed, No. Dorchester. C. 4-24
a. 66¼. b. About 75. c. Most people prefer summer stands. d. I should say, good.

C. E. Waltz, Rumney. C. 5-2.
a. 56. b. About 40. c. Cellar wintering; those left out, dead. d. Prospects fair.

NEW JERSEY.

Watson Allen, Bernardsville. N. C. 5-5.
a. 80. b. 80. c. On summer stands, in chaff hives. d. Good.

J. H. Stidworthy, Ogdensburg. N. 4-3.
a. 89. b. 25. c. summer stands. d. Good.

J. D. Coles, Woodstown. S. W. 5-5.
e. 90. Not all secured; season two weeks late. f. Fruit-bloom and dandelion.

NEW YORK.

P. H. Elwood, Starkville. C. 5-1.
a. About 95. b. About 92. c. Cellar wintering. d. Prospects good.

F. Boomhower, Gallupville. E. C. 5-3.
a. 99. I have traveled over a portion of two counties, Schoharie and Albany; have seen hundreds of empty hives; bees are over half dead. c. Cellar. d. poor.

G. M. Doolittle, Borodino. C. 4-23.
a. 90. b. 90. c. About half and half. No bees set from cellar yet. Think those wintered on summer stands will be the best on May 15 this year. d. Good, except that it is the off year for basswood.

Geo. H. Knickerbocker, Pine Plains. S. E. 5-3.
a. 85. b. 75. c. A cellar is preferred by those who have one suitable for wintering.

H. P. Langdon, East Constable. N. E. 4-25.
a. 90. b. 75. c. In the cellar. d. Cold backward spring. Other prospects good. Put bees out to-day—64 swarms.

NORTH CAROLINA.

H. M. Isaac, Catfish. W. 5-2.
e. Honey is coming in freely at this date. f. From tulip, called poplar with us.

Abbott L. Swinson, Goldsboro. E. 4-28.
e. Very little; flow just began yesterday. The earliest season since 1884. f. From poplar, or tulip, and black gum.

OHIO.

Chas. F. Muth, Cincinnati. 4-14.
a. 100. b. 75. c. Wintering on summer stands. d. The prospects of a honey crop will be below the average yield, to the best of my judgment.

A. B. Mason, Auburndale. N. W. 4-30.
a. 97. b. 85. c. Cellar.. d. Good.

S. A. Dyke, Pomeroy.. 5-5.
a. 100. b. 95. c. Summer stands, in chaff. d. Good. Honey has been coming in quite lively from fruit-bloom the last few days.

Dr. G. L. Tinker, New Philadelphia. N. E. 5-7.
a. 98. b. 90. c. Summer stands. d. Never better.

Dr. H. Besse, Delaware. C. 4-28.
a. 11. My loss is 100 colonies out of 112 put into winter quarters—the greatest I ever had. b. 20 per cent as far as I have heard to date. c. Cellar. d. Seem good.

OREGON.

J. D. Rusk, Milwaukee. N. W. 4-25.
a. 66⅔. b. 50. c. Summer stands, altogether. d. The prospects are good.

PENNSYLVANIA.

Watts Bros., Murray. C. 5-2.
e. No. f. Soft maple.

S. W. Morrison, Oxford. S. E. 5-3.
a. 75. b. 40. c. Summer stands (it is generally successful). d. Excellent, if we had the bees. e. Some honey. f. Cherry-blossoms.

Geo. A. Wright, Glenwood. N. E. 4-28.
a. 80. b. 60. c. Summer stands. d. Good.

C. W. King, Emlenton. N. W. 5-1.
a. 80. b. 80. d. Good.

RHODE ISLAND.

A. C. Miller, Providence. E. 4-20.
a. 50. b. 95. c. Summer stands, chaff-packed. d. Fair; season 2 weeks late.

Samuel Cushman, Pawtucket. 5-1.
a. 85. b. 75. c. Wintering on summer stands. d. New honey is coming in from maple.

SOUTH CAROLINA.

W. J. Ellison, Stateburg. C. 5-2.
e. About 50 per cent already taken from the bees. Crop far above the average. f. Some from clover, blackberries, and locust, but our most abundant crop is from holly. I am about the only one who has taken any honey as yet. Most of our bee-men use box hives, and don't rob until corn tassels.

Harvey T. Cook, Greenville. N. W. 4-29.
e. Not quite an average crop up to this time. f. Apple, cherry, raspberry, and from various sources in swamp or forest.

J. D. Fooshe, Coronaco. 4-27.
e. The honey-flow is better up to date than for two or three years, and the prospect at this date is for a good yield. No surplus has yet been taken. f. The first honey of any consequence was gathered from the willow; next, poplar and blackberry, which are now in bloom.

TEXAS.

B. F. Carroll, Dresden. E. C. 4-27.
e. Some apiarists extracted 12 lbs. of judas-tree honey per colony, and now the hives are being rapidly filled with honey from rattan vine. Plenty of rain up to date, and the mint is fine.

L. Stachelhausen, Selma. S. C. 4-25.
e. About 30 lbs. surplus per colony as yet. Usually we get no surplus honey at this time. f. From mesquite, persimmons, cat-claw, and many different prairie flowers.

J. P. Caldwell, San Marcos. S. W. 4-22.
e. Have secured a full average crop. We never have surplus honey before May 15. f. From Spanish persimmon.

J. E. Lay, Hallettsville. S. E. 5-1.
e. Honey crop just beginning; perhaps 10 per cent. f. From spring flowers and prickly ash.

W. A. J. Beauchamp, Orange. S. E. 4-24.
e. Crop to date, above average. Swarming fever amounts to a craze. f. From all sources—wild flowers and hawthorn leading, to be followed by locust, fruit-blossoms, etc.

TENNESSEE.

W. H. Greer, Paris. N. W. 5-3.
a. 80. b. 90. c. Summer stands. d. Very good. e. None harvested yet, but quantity gathered seems equal to an average. f. From soft maple, fruit-bloom, black gum, black locust, blackberry, and white clover.

G. B. Cartmell, Jackson. N. C. 5-1.
e. The average is rather better than for the last 3 years—about 40 per cent of an average crop. f. From poplar and other growths in the woods; also from white clover.

J. J. Lawson, Lookout Mt. C. 5-7.
e. 3½ lbs. per day. Better than for 7 years. First swarm April 3. f. Fruit-bloom, now poplar; soon will follow raspberry and oxydendron.

C. C. Vaughn, Columbia. C. 5-3.
e. Average crop. f. Poplar, white clover, black gum, locust, fruit-trees.

VERMONT.

Howard J. Smith, Richford. N. C. 4-24.
a. About 40 per cent. b. Not over 25 per cent. c. Cellar wintering is the most practical. d. Good

L. A. Freeman, Guildhall. N. E. 5-7.
a. 50. b. 50. c. Cellar wintering. d. Poor.

A. E. Manum, Bristol. W. 4-23.
a. 94. b. 90. c. Wintering on summer stands is preferred here. d. Favorable, though we expect only a medium crop; off year for basswood.

J. E. Crane, Middlebury. W. C. 4-20.
a. 95. b. 90. Out of about 440 out-door hives, I have lost only 18, and broken up five more. Of 130 in cellar, I have lost seven, certain. c. Outdoor. d. Good.

VIRGINIA.

James E. Duvalls, Bellefair Mills. E. 5-1.
e. Owing to very cool weather, no surplus secured so far. f. Principally from fruit-bloom, what there is.

J. W. Porter, Charlottesville. C. 5-4.
e. Orchard bloom, just past; average yield; season backward and dry. f. Yield from orchards mainly. Condition of bees fine.

H. W. Bass, Front Royal. N. 5-2.
e. Bees working well on cherry and fruit bloom. No surplus until about May 12 to 15, from locust and clover.

WASHINGTON TERRITORY.

W. J. Frazier, Olympia. N. W. 4-24.
a. 100. b. At least 90. c. On summer stands—when set under a long open shed. d. The prospects at present are good.

W. W. Maltby, Port Angeles. N. W. 4-27.
a. 100. b. 90. c. On summer stands, as our winters are very mild. d. The prospect for a crop is good.

John H. Goe, Mossy Rock. S. W. 4-29.
a. 90. b. 66⅔. c. Summer stands.

WEST VIRGINIA.

J. A. Buchanan, Holliday's Cove. N. 5-4.
a. 90. b. 90. c. Summer stands. d. First-class in all things, save a light clover honey crop. Bees are now hauling honey from sugar-tree bloom.

M. A. Kelley, Milton. S. W. 4-22.
a. 90. b. 90. c. All on summer stands. d. Very good.

J. C. Capehart, St. Albans. S. W. 4-25.
a. As far as I can ascertain, 100 per cent wintered. d. Good

WISCONSIN.

George Grimm, Jefferson. S. E. 4-21.
a. 99. b. 90. c. Cellar wintering. d. Good.

Joshua Bull, Seymour. E. 5-7.
a. 92. b. 80 c. My bees wintered mostly upon summer stands; all others in this locality wintered in cellars, so far as my knowledge extends. d. Good.

E. France, Platteville. S. W. 5-1.
a. 90. b. Aside from our own and Mr Willson's, 50 per cent are dead. c. About half each way. d. Fair, with good weather

E. E. Tongue, Hillsborough. S. W. 4-30.
a. 100. b. About 90 per cent. c Cellar wintering. d Good

Frank McNay, Mauston. C. 5-1.
a. 85. b. 75 or 80. c. Cellar preferred. d. Fair prospects.

S. I. Freeborn, Ithaca. S. W. 4-23.
a. 90. b 90. c. Cellar. Only moderate. White clover badly killed out by drought.

J. C. Sayles, Hartford. S. E. 5-5.
a. 85. b. 75. c. Cellar wintering. The loss in chaff hives was very heavy last winter. d With favorable conditions, we expect a good crop of honey.

WYOMING TERRITORY.

G. G. Mead, Ferris. S. 4-27.
a. 100. b. No other bees in my locality. c. Summer stands preferred. d. Prospects for honey crop good. Spring forward.

Unfortunately Prof. Cook's report was mislaid, and hence did not get in its regular place. We give it below.

MICHIGAN.

A. J. Cook, Lansing. S. C.
a. 50 per cent of our bees died. c. All wintered in new cellar d Prospects for honey not very favorable. See page 408.

REPORT FROM ASSOCIATION.

a. Loss about 50. c. Wintered about equally in cellar and outside.

In the way of a summary we find by a little figuring that the report, averaged for the entire United States, stands as follows: Question *a*, 84; *b*, 67½; to question *c*, 81 report; 41 of this number answer wintering on summer stands; 35 cellar wintering, and 5 about equally divided between the former and latter; to question *d*, 62 reply. Of this number, 35 report favorable; 13 unfavorable, and 14 moderate; *e*, as nearly as we can estimate, is about an average to what it has been previous seasons; *f*, from the nature of the case, is very various; though fruit-bloom figures conspicuously. The reader, in order to understand the summary as given above, is requested to look at the questions at the head of this department.

Now, then, there are several important facts. Fact 1. Question *b* of this issue corresponds to question *a* of the Honey Statistics in our issue of April 1. The average loss for April 1 was 15 per cent. But this report included the whole of the United States, South as well as North. The averaged percentage loss as called forth by question *b* in this issue is 33 per cent. But why the difference? Observe that question *b* in this issue calls for responses from *only* the Northern and Middle States, while question *a*, of April 1, included the whole South as well as the rest of our country. If the Southern States had been eliminated from the domain of this latter question the percentage loss of the two reports would have been very nearly the same, because it is a poor bee-keeper who can not report 100 or nearly that of his bees wintered in the Southern States.

Fact 2. Observe that scientific wintering in the hands of expert bee-keepers, as compared with the wintering of bee-keepers in general (good, bad, and indifferent), stands in the ratio of 84 to 67.

Fact 3. Observe that two or three of the most prominent and successful honey-producers have been the heaviest losers of bees during the winter—C. C. Miller losing 55 per cent; James Heddon 33⅓ per cent, and A. J. Cook 50 per cent; Dr. H. Besse 89 per cent.

Fact 4. By referring to the tabulated reports you will see that 15 (out of the 85 who reported their own loss) wintered 100 per cent of their bees; 3, 99 per cent; 5, 95 per cent; 12, 90 per cent; 7, 85 per cent. Now, bear in mind that all of the percentage of loss in answer to question *a* represents *actual* personal losses; the percentage of loss in question *b* represents *estimated* losses for the locality, because the reporters were not able, in most cases, to give exact data.

Fact 5. Observe that cellar wintering and wintering on summer stands was in nearly equal proportion—the ratio being 35 to 41. Notice, also, in these States where severe winter weather prevails, that cellar wintering is preferred as a rule, although chaff packing on summer stands has given excellent results. A little further South wintering on summer stands and cellar wintering are about equally divided. Still further South, outdoor wintering is given the preference.

Fact 6. Observe that there are more reports making out the prospects good than there are making them out poor—the ratio being about three to one.

Fact 7. The honey-flow in those localities where nectar is being secreted is as good as the average, taking it as a whole.

QUESTION NO. 38 AGAIN RECONSIDERED.

ANOTHER OF OUR SOUTHERN CORRESPONDENTS REVIEWS THE SITUATION.

ON page 298, Apr. 15, we find Question No. 38 reconsidered by L. Stachelhausen, of Texas. Let us, in return, ask him to reconsider what he has written in that article about the stores consumed by bees and the difference in their breeding in warm and cold climates. I am ready to admit, from the statements made in his article, that what he says is true of that part of Texas wherein he lives, or, for that matter, it is probably true of any locality where there is a protracted drought of several months during summer, be it north, south, east, or west. We are all aware, or should be, that long and protracted droughts cut off brood-rearing in summer. How much of what is known as the "South" is subject to such protracted droughts as Texas? Why, not more than one-fourth of it, if that much; consequently the answers as given to Question No. 48 are more correct for a larger portion of the South than his are—much more so.

I have never kept bees in a cold climate, but I have kept them in the South, and observed them about as closely as any man, and I know the difference there is in the stores consumed here, even, in a warm and a cold winter. The very fact that, "as soon as pollen is coming in, breeding is going on rapidly," and no honey is being gathered, together with the fact that a great amount of honey is consumed, is why so much more stores are consumed in a warm climate. There are but few States in the South in which our bees do not gather pollen plentifully from January to November. Here in this part of North Carolina, bees gather plenty of pollen after the first of January, unless it is so cold they can't fly out to get it (from tag-alder); so it is often the case that there are from 500 to 1000 square inches of brood in an 8 L. frame hive the 10th of January. No honey is to be had before about May 1st. In May it comes in plentifully; in June, less honey is made than during any other month from May to November. From July to November they get plenty of honey and pollen to keep up brood-rearing, and they do it till about November 15th; and from November 15th to December 20th or January 1st, owing to season, there is little or no pollen gathered, so brood-rearing ceases for about 30 to 40 days only, during the year.

I should be very glad if Mr. S. would tell me how to avoid this early breeding which he says is "very easy in the South." It would save me from $50 to $100 for sugar, which I have to feed each spring. Last season I had to feed up to May 12, and at this writing I am still feeding, and have fed to 50 colonies nearly 700 lbs. of sugar already, and all because it is warm, so bees fly almost every day during winter, getting plenty of pollen, but no honey, and begin to breed so early.

You are wrong, Mr. S., and friend Root too, in his foot-note, except as applied to some drought-stricken part of the South, and drought has its effect wherever it goes, north or south. I write this in support of the answers to Query No. 38, and of the actual state of affairs, as known by practical knowledge and test, that exist in the larger portion of the South. It in no way reflects on Mr. S., for what he writes must be as correct for his locality as the general answers to Query No. 38 are for the South in general. ABBOTT L. SWINSON.

Goldsboro, N. C., April 24, 1888.

I presume, friend S., you mean that I am mistaken in thinking that little stores are consumed during a drought. Well, perhaps I am; but I have a great many times seen brood-rearing almost suspended on account of very dry weather; and it has been my opinion that, during such times, but little stores were consumed — certainly not as much as when the hives were full of brood, and but little honey to be had in the fields.

PECULIAR EFFECTS OF BEE-POISON ON CERTAIN PEOPLE.

MR. LANGSTROTH CORRECTS A MISTAKE.

FRIEND ROOT:—In your answer to Mr. Parker, on page 352, you gave your recollections of what I said about "being affected unpleasantly by being even near a bee-hive," and that "I imagined the bees were the cause of the peculiar sensations, when they had nothing to do with it." If you have time to refer to my article, you will find how badly your memory has served you, in making me attribute to "a notion" what I spoke of as an undoubted fact.

When I first kept bees, the effect of a sting was very severe. In time it troubled me very little. After giving up bee-keeping for a few years, the effect of the poison was so severe as to exceed any thing in my former experience. Even the reading of a postal card from a person who had been handling bees caused me great suffering! Suspecting that this new experience was like that of an old tobacco-chewer who, after years of abstinence, suddenly begins again, I deliberately exposed myself to be stung again and again, and soon found no trouble from the poison.

I have repeatedly, at the *beginning* of the bee-season, brought on severe headaches by inhaling the odor of angry bees, also swelling of the eyelids, but not as great as in Mr. Parker's case.

Dayton, O., May 6, 1888. L. L. LANGSTROTH.

Friend L., I humbly beg pardon for expressing myself as I did; but it was not my memory that had served me badly—it was a wrong impression that I received in reading the article in the first place. The paragraph that gave me the wrong impression is as follows:

> May I not be mistaken, then, in supposing that any great change has taken place in my system, as respects the effects of the bee-poison upon it? and may not my painful experiences of the last six years be accounted for in another way?

Now, I still think one might readily conclude from the above quotation that you had decided it to be a mistake; and the last part of the quotation also encourages the idea, does it not, that your singular experiences may have been caused by something else, entirely outside of bees or bee culture? Now, it may be that there is some subtile agency connected with bees, so wonderful in its properties that even a postal card written by a bee-keeper may carry unpleasant sensations to the reader; but I hope you will excuse me for saying I can not believe it possible until we have further evidences of it. I know that a great many people honestly think they are affected in the way you describe, because I have heard it mentioned several times; but I do think they are mistaken; and without any idea of giving offense to any one, I can not but consider it a "notion" that people are liable to fall into. I do not mean to reflect unkindly by using the word "notion." I get notions myself, and sometimes I hold them so tenaciously that I am inclined to take offense when some one suggests that it is *only* a notion. May God give me grace to let go of my notions, when proper proof is presented. When you told us how you rejoiced to be able to handle bees and movable combs again, and expressed it in that happy fashion,—

My foot is upon my native heath,
And my name is McGregor,

(see page 560, GLEANINGS for Aug. 15, 1885), I took it that you meant to tell us you could have handled bees at any time had you resolutely decided so to do, and shook off the idea you had fallen into, that they were doing you injury. In other words, instead of experiencing any terrible effects from getting stung repeatedly, the bee-stings did you good. If I have pained you by hastily jumping at conclusions, I beg pardon. But the principal point involved is this: Are these people who say they can not go near a hive, or even go near a person who handles bees, right about it, or is it a mistake they have fallen into? I should prefer to substitute the word "notion" for "mistake," but perhaps mistake will be the better word.

THE SILO.

PROF. COOK GIVES HEAVY TESTIMONY IN FAVOR OF ENSILAGE.

DEAR MR. EDITOR:—I wish to add to what Mr. Terry says of ensilage. I have a silo, and I know I can fully double my stock on the farm by its use. This means double the manure, which in turn means double the fertility of the farm. The silo may be right in the barn. Mine is. It needs only to be air-tight. It may be very cheap, and, if rightly used, furnishes a food that keeps the stock in most excellent condition. An acre of corn may furnish eighteen or twenty tons of ensilage, three of which equal one of the best hay. These facts show ensilage to be a grand adjunct to the farm. I had been feeding my cattle ensilage for some weeks, when my brother thought of an experiment. One day while the cattle were in the yard he filled the mangers, half with bright hay which they had not had for weeks, and half with ensilage, which they were being fed daily. They commenced as usual to eat the ensilage, with a gusto, while the hay was unnoticed. The hay was then replaced by nice corn and oats ground. They still kept at the ensilage, and paid no heed to the grain. Now, I believe that relish is a wonderful condiment. Food we relish is the food that will do us good, no matter what the chemist finds as to its composition. It is true, that the chemist finds no more nutriment in ensilage than in the dried fodder; but the chemist can not measure digestibility nor suitability. It is a fact, that ensilage acts much as does the green succulent pasture of June.

Again, the ensilage of to-day is no sauerkraut; and if friend Hayhurst could have seen, smelled, and tasted of that in my barn the past winter he would not object to it for his cow, I am sure. One could go into the barn, close by the silo, or even into it, and not think of ensilage. Indeed, it was pleasant to the taste. I found when I was in the barn that I was following the example of the men who did the chores—constantly nibbling away at the ensilage. It was not very tart, but pleasantly so.

I, with many others, have proved the following points:

Ensilage is a grand adjunct to the farm.

Corn can be saved as ensilage cheaper than in any other way.

It is best to leave the ears on the stalks. The corn is softened so that digestion is easy and perfect.

The corn-stalks should not be cut till the corn is glazed, when it may be put rapidly into the silo, or allowed to dry or wilt some.

I put mine in as fast as was possible, and secured nice sweet ensilage. Some, however, say that it is better to fill one day, then wait a day, then fill again, etc. I cut my stalks into half-inch lengths. This makes it easy to pack it well in and about the sides of the silo—an important point—and to remove it when feeding.

The door should go from bottom to top, and be closed by strips eight inches or so wide, as we fill the silo. This *must* be made air-tight by use of paper as the boards are put in place. In feeding it is best to rake off from the top, and lower all at once.

My brother *never* runs in debt. He was a doubter on the silo question, and had charge of building, filling, and feeding at my place. He was asked at a recent farmers' club what he thought of the silo, now that he had seen its work. He replied, "I think I should build one at once, even if I had to run in debt to do it." A. J. COOK.

Agricultural College, Mich.

Friend Cook, I am greatly pleased to get this testimony from you just in time to back up Terry. It is about what I expected. But in all I have read upon the subject, I never before noticed that ensilage was fit for human beings to eat. I am exceedingly fond of sauerkraut. The tart taste of it is very pleasing to me, and it agrees with me so well I am sure it is a very wholesome food. Now, I am inclined to think the horses and cattle find the ensilage, as you and your brother put it up, conducive to their health in the same way. For years we have had trouble with the stalks from our sweet corn; that is, we have had trouble in curing them. They either mold, or dry and break all up; then the horses and cattle both dislike them. Now, I wonder if either yourself or friend Terry, or anybody else, can tell whether it would be practicable for us to put our sweet-corn fodder into a small silo. It contains more sugar than ordinary corn fodder, and I am inclined to think this fact makes it mold all the quicker, unless you dry it as above mentioned. Our ground is so valuable that we pull up the stalks just as soon as the ears are off; and as we pull the ears before the glazing stage, the stalks are green, and full of juice. After the ears are off, every stalk of corn is little better than a weed, so we get them out of the way, and put something else on the ground as speedily as possible. We have perhaps two or three acres of sweet corn ripening at different times, from the middle of July till frost. Would a silo be practicable under these circumstances?

ANOTHER SLANDEROUS STORY ABOUT OUR HONEY-BUSINESS.

A DOWN-SOUTH REPORTER COOLLY DECLARES THAT GOLDEN HONEY RUNS OUT OF THE TREES BY THE BARRELFUL.

ALMOST every mail brings us more or less clippings from different newspapers about a tree near Griffin, Ga., that yields a barrel of honey every year, etc. It seems strange that it is necessary for us to even say that the whole story is simply a canard, to make people gape and stare and wonder. The reporter who got it up is doubtless the same chap, or one of the same class, that got up the story about artificial eggs and artificial honey. It is substantially as follows:

> I made a visit a week ago last Sunday to John H. Mitchell's. I found this gentleman at home with his family, and my wife and I received a most hearty and cordial welcome, and spent a happy day. We had every thing good for dinner, and I tried to do full justice to their bountiful hospitality, and I guess I did it. Mr. Mitchell is one of our stirring, active business farmers. He always says, "Come on, boys," rather than go on. He moves, and his work moves with him; he does not wait for luck, but trusts to vim and energy. He is a practical as well as an experimental farmer—he works to utilize every thing, and wastes nothing. After dinner he was sitting on his front piazza, and I discovered some bees going in and out of a knot in one of

the large oak-trees in front of his dwelling. This tree is known to be over a hundred years old. I learned that, several years ago, a swarm of bees assembled in that tree as their new home, and they have lived and worked there ever since. After they had been there three years the colony became very large and strong, and no attempt had ever been made to rob them of their honey. At last Mr. Mitchell came to the conclusion that the tree must be full of honey, from seeing the large number of flies and bees around the root of the tree; so he set to work to devise some means to get the honey without cutting the tree down. After supplying all the tests known to bee-men he satisfied himself that the tree was full, and then decided to tap it. So he got him a faucet and an auger, and bored a hole in the tree near the root, and then screwed in the faucet, and, to his surprise and great delight, a solid stream of pure and elegant honey, as clear as crystal, gushed forth, and the supply seemed to be inexhaustible. It continued to pour out until he had filled six barrels, and he has drawn each year since that time from three to four barrels of pure strained honey from that old oak-tree, and up to this there seems to be no signs of failure of the supply, as the bees are still a very strong and healthy colony. The same year that Mr. Mitchell tapped the old oak-tree there was a new thick growth sprung up around the old oak, of an unusual appearance, having a smooth bark and thick waxy leaves. One day he pulled off one of the leaves and put it in his mouth, and found it to be very sweet; and upon examining the place from which he had picked the leaf he discovered that the plant was bleeding, or emitting from the wound a clear thick-looking juice, which, upon tasting and examination, proved to be honey. He then commenced to nurse the new volunteer growth with the tenderest care and attention, looking after them daily; and as the summer advanced, the plants continued to grow; and in the fall he selected and transplanted 300 of them in very rich soil, thirty feet apart, and they grew very rapidly, making a beautiful display with their straight smooth trunks and their thick and glossy wax-like leaves, and the grove was seen and admired by all for miles and miles around. Mr. Mitchell's idea was that, as large money was made from the sugar maple by boiling the juice, he ought to make more from a tree that would run the pure honey, and he was right. When the trees were four years old, in the fall of the year they were large enough to insert faucets. So he had 300 faucets made to order, and screwed them into the young trees, and the following spring the result was remarkable. Each tree yielded an average of ten gallons of the richest golden honey; the following year each tree yielded an average of twenty gallons, and now the average is about a barrel to each tree during the year, and the grove continues to grow and flourish, and shows no signs of failing to supply a bountiful yield in the years to come. The quality of the honey is so fine, and the flavor is so delicate, that it always commands the highest prices, and the demand is greater than the supply.

A hollow tree might contain a barrel of honey, and there might be bees enough to store it for a year; but the above story goes on to say that the farmer named Mitchell has 300 more of the trees planted out, and that, when the trees were four years old, each young tree yielded golden honey. Now, I am sure that the newspaper that gives place to such a yarn does itself a damage that it can not soon get over; and every paper, north and south, that copies it, especially under the guise of a truthful statement, also damages its standing among sensible people. It looks now as if almost every paper in the land were going to copy it; and so far, I have not seen a single protest from any editor. Dear friends of the press, is there not ignorance and superstition enough in the land, without having our papers and journals go into the business? The press should be our educators; and their special office and field is to put down fraud and humbug. Some of you may say, that if any man, woman, or child believes such foolish stories it is their own fault. Not so. It is our business to guide the young and the illiterate; to sift truth from falsehood. If you want to print any such stories for the fun of it, add a postscript or short editorial that will effectually prevent any credulous person from accepting the whole thing as truth. Remember the "comb honey" and "artificial eggs" stories. Thousands of good people gravely declared that eggs were manufactured so skillfully that none but experts could tell the genuine from the bogus. The reporter probably did visit a bee-man, and very likely this bee-man was unable to supply the demand for his honey. He may also have had a bee-tree on his premises, and perhaps he may have had a maple-sugar grove—that is, if they make maple sugar in the South. The reporter, seeing the maple sap drip from the wooden sap-spiles into wooden buckets, got things mixed. Perhaps if the State of Georgia had managed to shut up *all* the saloons, this reporter might not have got maple sap and golden honey so confused in his imagination. The Saturday *Telegram*, of Albany, N. Y., says the reporter took his *wife* along. It is a pity she was not still with him when he wrote up the story about that visit.

THE FOOD OF LARVAL BEES.

THE LOWER HEAD GLANDS.

Continued from last issue.

THE ducts from the lower head glands open into the lower part of the mouth, between the muscles of the mouth. If the bee chews, this secretion must surely empty and be mixed with the chewed material. This, then, is mixed with the pollen. This is certainly true; for the pollen in the honey-stomach shows some of its caps opened or elevated; and as no gastric juice is secreted in the honey-stomach, this partial digestion is accomplished by the saliva, and presumably that from the lower head glands. Further, this saliva is used in kneading the wax by the jaws. F. Huber (*New Observations*) says that the fresh wax scales and the chewed wax are chemically different; and Eulenmayer and Von Planta found in the wax scales 0.5977% nitrogen, while in the chewed wax there was 0.95%. This must be due to this saliva. So we see that these glands secrete true saliva, and so can not be organs to secrete bee-food.

(I replied to the last argument in last issue. The above positions are well taken. Is it not quite likely that these glands serve merely to mix with and partially digest the pollen, and that Wolff's glands at the base of the mandibles are the glands that moisten the wax?)

The large size of these glands is no argument favorable to the gland theory, if we take into consideration that the saliva is very important in digestion, and in part takes the place of the gastric ferment of higher animals. Surely a large quantity of saliva is added to the pollen food of bees, and so this saliva is indirectly a part of the chyle and larval food.

(This is surely a powerful argument. We secrete saliva almost entirely to moisten our food, and the daily quantity is estimated at three pints. If this saliva in bees is to moisten the pollen, and the position of the duct adds powerfully to the argument, then much would certainly be needed. The fact, too, that drones and queens do not have these glands, and do not prepare their own nitrogenous food, is in harmony with, and, in fact, lends support to this view.)

We can find the same glands in other insects which do not feed the larva at all, as *Eristalis tenax*, which has these glands fully as large as those of the bee; and *Nepa cinerea*, which has these glands, and they are very similar to those in the bee.

(This is surely a very strong argument.)

The product of these glands can not be spit into the cells, for bees never spit. Nor is it at all likely that this secretion is swallowed to be regurgitated into the cell. Nature always empties her products where they are to be used; so if there were milk-glands they would either empty into the honey-stomach, or else some apparatus would have been developed that this secretion might have been poured directly into the cells.

(I think these points are excellent.)

These glands are in full function all winter, when no brood is to be fed. They must then have another purpose.

(How is this when bees have no pollen for their winter food? Of course, they usually have the pollen.)

If a colony passes the winter queenless, and no brood be fed for five or six months, and then receives a frame of brood which has been kept out of the hive till the larvæ are in a starving condition, we observe that this brood is fed at once. If this food is a product of glands used only for such purpose, this would be absolutely impossible after such long rest.

(This is certainly a good point.)

If bees are fed honey mixed with indigo, the larvæ are no longer fed, but commence to starve, while the mature bees remain healthy. The indigo prevents contraction of the stomach, and so regurgitation is impossible; yet the food is digested and absorbed. If the larval food were a secretion it would still be supplied.

(Granting these facts, the conclusion must follow.)

The following experiments of Schonfeld prove that the larval food is chyle:

Bees were fed honey mixed with carmine. In the larval food of this colony, and also in the chyle of the true stomach of the bees, were found the chilinous points of the cochineal insects from which the carmine is made. The blood was normal, because the fine particles were not digested, and, of course, could not be absorbed. As a secretion is derived from the blood, the secretion could not have what the blood did not have.

(This is also a crucial argument. The facts granted, the conclusion must be.)

Powdered iron was fed, with the same results.

Again, bacteria were fed to the bees—at first *Bacterium termo* and then the bacillus of foul brood —*Bacillus alveolaris*. In both cases the organisms were found in the larval food, but not in the blood of the nurse-bee. As these were not in the blood, they could not exist in a secretion from the blood.

(This is an interesting point, as it explains fully why the fasting method, or the changing of the bees to clean hives, cures this dreaded malady.)

Von Planta finds the food of the young larvæ as follows:

	Queens.	Workers.	Drones.
Albuminous..........	46.5 %	50.16%	39.91%
Oil...........	12.62	6.84	7.85
Sugar	17.90	27.65	1.17

We see that the food for the different kinds of larvæ varies greatly in composition. If this is a secretion it could not vary, as the glands could not secrete arbitrarily a richer or a poorer substance. But if this is chyle, it is easy to understand its variability; it would necessarily result from a variation in the food of the nurse-bees as to honey, pollen, or water. The defenders of the gland theory say that the secretion may be mixed in the honey-stomach with honey or water—pollen is out of the question, as we have seen that it is not given undigested to the larvæ. The experiments with colored honey shows this to be untrue.

That chyme (Mr. S. uses this term to denote partly digested food) is added to the secretion of the gland is out of the question, because chyme is surely prepared in the true stomach, and not in the honey-stomach. In the chyme are the shells, or husks (cuticulæ), of the pollen, but no whole pollen grains. If we examine the stomachs of bees we shall never find such empty pollen grains—husks—in the honey-stomach, except in the case of quite young bees just recently emerged from the cells. These bees are fed by the older bees with chyme. In the true stomach we can find these shells, if we examine a bee at the proper stage of digestion.

As soon as the larva fills the bottom of the cell—from the close of the fourth day—the larva receives chyme, or partially digested material, from the true stomach, and this contains the cuticulæ. At first these are few, but more and more are added, so that, just before the cell is capped, they are numerous. This is also true of color when colored honey is fed.

(This is very interesting, and bears the impress of truth. This chyme is fed to the larvæ of workers always, and sometimes, not always, I think, to the larvæ of queens.)

The defenders of the gland theory say that it is impossible that bees regurgitate any material from the true stomach into the cells; for, as Schiemenz has shown, the stomach-mouth is prolonged into the true stomach, and so would act as a valve, and prevent any of the contents of the true stomach from passing back into the honey-stomach and mouth. But Schonfeld has shown that this is a mistake. The muscles are so arranged that this prolongation can be drawn up, and so in nowise prevent regurgitation. The bee itself proves that it can, for the full-grown larva does receive chyme, the product of the true stomach, and not of the honey-stomach. If the bees can regurgitate chyme or partly digested food, they surely can chyle, or that which is fully digested. This is chyme and not pollen, as the husks show.

Why should we be surprised that the bee does this? It is a master of regurgitation, vomiting up all its honey, and some of it several times. A full understanding of the stomach-mouth enables us to understand how it regurgitates its chyme and chyle.

Selma, Texas. L. STACHELHAUSEN.

Friend Cook, I congratulate you on having got hold of and brought out a man who is so familiar and so fully conversant with these valuable experiments of Leuckart, Von Siebold, Schonfeld, and other German naturalists. The above facts remind one of the old *A. B. J.* when Wagner was in charge of it, during its infancy. During that period we had some very valuable translations from the writings of those distinguished German writers. I am surprised to find we have in our own country a man able to give us all this valuable information, and I would ask our good friend S. if the results of these experiments have ever before been given in print—that is, in our language. We are indebted to him for having opened the way for our American microscopists to verify the results given above, by actual experiment. If I am correct in the matter, what I have written in the A B C book in reference to the food of the larvæ is not so very far out of the way, after all. I presume now that my information was mainly obtained from the old volumes of the *A. B. J.*

LANDMARKS FOR BEES.

C. C. MILLER FINDS FAULT WITH THE HEXAGONAL APIARY.

FRIEND ROOT:—I have done a good bit of thinking about your remarks at the close of my article on page 201. (The best part of my articles is always found *in the coarse print!*) You say that, in your apiary, "even with the hives seven feet apart, and even though the chaff hives alternate with Simplicity hives, and have their entrances in opposite directions, there is a good deal of trouble with bees getting in the wrong hives." In reply I may say that this is quite a serious matter; for if what you say is correct, my advice may lead others into trouble. But my hives occupy less than half the space that yours do, and all of the same pattern, and I have tested the matter thoroughly for years, and I am confident there is no such trouble as you speak of. Now, here's a state of affairs! Which of us is telling the truth? But if we go to calling one another hard names, we'll only have to make up again; and it's a good rule to make up *before we fall out.* Let us see if we can not find out what makes the difference. It can hardly be the kind of bees, and I don't believe we can lay it to locality, that poor thing at whose door so many things are laid.

Suppose you say to me, "Do you see that level acre meadow lot? You will find there a jack-knife that I left on the ground in the middle of it." I might hunt a long time before finding it; and if you told me it was at the foot of a tree, the lot being filled with trees just alike, seven feet apart, the task would still be a difficult one. But if the trees were a rod or more apart, and you should say, "I left it just a little to the north of that wide-spreading elm," I could find it directly. Now, between our apiaries exists much the same difference as between the bare meadow lot and the lot of big trees. You have a beautiful level piece of ground with not a bush or tree in it or about it, and the only thing to direct the bees is the appearance of the hives; and the result is just as you say: "There are so many hives looking almost precisely alike that they pitch on to the wrong hive." In my apiaries there are trees more or less unlike at all parts of the apiary, and I think the bees pay but little attention to the appearance of the hive, so far as finding it is concerned. It is true, if I change the appearance of a hive even so little as laying a bush on top of it, the bees appear to take note of it; and if there is much change in the appearance of a hive, quite a commotion will be raised by the bees reconnoitering in front before entering; but still the bees do not try to enter any other hive. That the bees do not find their hives entirely by the appearance of the hive, is clearly proven in this way: If I take away a hive entirely, the bees on returning from the field go directly to the spot where the hive stood. Certainly the appearance of the hive does not attract them, for there is no hive there. They appear to take their bearings from the trees, buildings, or other surrounding objects. If you watch a single bee thus perplexed by the removal of its hive, you can almost imagine it soliloquizing as follows:

"Here I come with a nice load of nectar, and I'll find my home just between those two apple-trees, and a little nearer to the one with the big drooping limb at the north. What! I thought I took my bearings all right, but I seem to have missed it somehow. Guess I'll go back and try it over again." And that bee, instead of entering a hive a foot or so to one side, or even its own hive if moved not more than a foot or two, will fly up a rod or perhaps several rods in the air, and take its bearings afresh, and repeat this operation till, discouraged, it seeks refuge in any convenient hive. But in your apiary, friend Root, it has nothing to take its bearings from except the hives, and they are so much alike that mistakes are made. If a hexagonal apiary were placed in a ten-acre field, entirely level, and with nothing on the ground but the hives, they all looking alike, and twenty feet apart, I suspect many bees would enter the wrong hives, just because once in every twenty feet there is a place that looks all right, both of itself and in its relation to surrounding objects. Prof. Cook tells of his bees going in numbers to a certain part of his neighbor's house, because of the similarity of the two houses. Now, in my apiary, wherever a hive is located, there is no other spot in the apiary, or in the world, for that matter, just exactly like it, *considered in its relation to surrounding objects.* What's the lesson? If I had your apiary, friend Root, I would have some landmarks at once. Even a ten-foot pole stuck in the ground, with a rag at the top, would help. Your grounds look very nice, so neat and clean and so regular; but that regularity is what makes the mischief; and I don't think your grounds are more beautiful for being entirely treeless. So I would have some trees set out this spring among the hives. If the trees are exactly alike I think two or three rods apart would be better than a rod. But if the trees are unlike in appearance, as they most surely will become as they grow, it will matter little about the distance. A carefully planned irregularity in planting, imitating nature as closely as possible, would be more pleasing to the eye and convenient for the bees. Then I want shade trees to work under, every time.

Marengo, Ill., April, 1888. C. C. MILLER.

Well, old friend, you have been thinking the matter over considerably, haven't you? I guess you are right about it too. We have thought of this matter of trees a good many times; in fact, the boys have started some already. They told me, when I objected, that I could pull them up when I found them to be detrimental. There are a good many reasons why I do not want trees in our apiary. From the windows of our office as it is, we can see every hive, and see the apiarist plainly, unless, indeed, he be stooping down introducing queens, or something of that sort, behind an unusually bushy grapevine. In fact, the office girls are in the habit of calling to him when a new lot of queens arrive by mail, or when some special order demands that he go at once to get it off by the first train. Another thing, it is always a great bother to have to run around a tree or a building to look after a swarm that has issued. In our old apiary we had a honey-house in the center, and some mischief was sure to be going on behind that house that would not have happened if I could have swept the whole apiary with my eye at a glance. Since you call attention to it, I remember several things that corroborate your point—that bees depend on trees, buildings, and large objects, rather than on the looks of the hive. The first swarm of bees I ever owned was set before an open upper window in a row of brick buildings. They recognized their own window, because it was always open. Finally, however, when a workman raised his window precisely as their window was raised, the bees were evidently perplexed, for great numbers of them came into the window and annoyed him exceedingly. He was on the same floor, but the third window from where they were located. Our grapevines, when covered with foliage, differ somewhat, it is true, but perhaps not as much as trees. But our worst trouble is in the spring time, when the vines are entirely destitute of leaves. During the working season, when the vines, grass, and perhaps a few straggling weeds, change the aspect of things, there is not nearly so much of this sort of trouble; and about the time we rear queens largely, the aspect of things is usually changed, so that we are quite successful in getting young queens fertilized. No doubt some of our keen inventors may make a practical use of the hints you have thrown out. Notwithstanding your objections, I do like a nice, regular, neat, and orderly apiary. We shall be glad to hear from others on this matter.

MANIPULATION.

EASY AND PROFITABLE IN WELL-ADAPTED HIVES.

ALTHOUGH I was present at the Detroit Convention of bee-keepers in December, 1885, where Mr. Heddon first called attention to the system of management with his "New hive," I heard him too imperfectly to get any adequate conception of his invention. My head trouble returning soon after, and lasting nearly two years, I lost all interest in bee-matters, and it was only in February last (my attention being recalled to this hive) that I was impressed with the idea that it might be a great step in advance, in practical bee-keeping. From the very start I saw that many *abused* the power of manipulation given by the Langstroth hive, because they failed to see that progress lay in reducing the necessary manipulations to a minimum. In the latest work of our honored Dzierzon, his wonderful acquaintance with the habits of bees seems, to Americans at least, to be greatly wasted upon a hive and system of management which would make our honey cost more than it would sell for.

To manipulate with whole cases of frames instead of by single frames, seemed to me a very wide extension of the principle so much insisted on in my first work on bees, published in 1853, that a hive ought not to require one single unnecessary motion, either for the bees or its owner.

Influenced by such considerations, I determined to see the actual workings of the Heddon hive in his apiary at Dowagiac, Mich. As the weather on my arrival there was too cold to handle bees, I carefully studied the hive. From what I know of the habits of bees and construction of hives, just as a short examination of a Munn hive shows me that it is worthless either for amateur or practical uses, so the longer I studied the Heddon hive, the stronger was my belief that it would accomplish what he claimed for it.

As soon as I could see bees handled in these hives, and could handle them myself, all my favorable prepossessions were fully confirmed; and knowing how little I could count upon the continuance of health, I felt that, in justice to the public, as well as to Mr. Heddon, I ought to put this opinion on record, by writing to some of my bee-keeping friends.

I think that no one who knows how I was deprived of the legitimate fruits of my own invention will be surprised that I should feel it to be *a positive duty* to use what influence I may have among bee-keepers to secure for Mr. Heddon both the honor and the profit to which he seems, not only to me, but to so many of our best apiarists at home and abroad, to be justly entitled.

Suum Cuique—" TO EACH HIS OWN."

From my earliest recollections my dear father enjoined this as a sacred duty upon his children—and I believe that all who know what I have done and written in connection with bees will bear me witness that I have not departed from the spirit of his teachings. It was this strong sense of duty to give honor to whom honor is due, which made me desire, even before I had any correspondence with Mr. H. about his hive, to go to Dowagiac and judge of it for myself. I will now describe some of the most important things that I there witnessed:

1. Before I saw the easy working of his frames (*even in hives which had been occupied for several years by bees*), with close-fitting uprights (I prefer this French term to our word ends), I could not conceive how they could possibly be handled as rapidly or safely as the Langstroth frames. The propolis trouble alone seemed to forbid this. Judge of my surprise, then, to find that, by leaving no space for bees to get between the uprights and the cases holding the frames, and by keeping the touching surfaces of the uprights so closely pressed together by the thumb-screws as to leave no joint open wide enough for bee-glue, he had actually reduced the propolizing propensity of bees to a minimum.

My knowledge of the trouble and delay in manipulating all the previous styles of close-fitting uprights led me to think that it would be quite difficult to handle the Heddon frames. To find that I was mistaken on this point was a greater surprise than the way in which the propolis difficulty was met. In handling Langstroth frames of the standard depth (and still more with deeper frames), bees are often hurt between the uprights and case—a thing impossible with the Heddon arrangement, while at the same time the uprights of his case—as they go down into the hive, when a frame is put back—only *push* the bees away instead of pinching them between their closing surfaces. When the Langstroth frames are put back, even by experts, it often happens that they must re-adjust the spacing, to get room for the last frame; whereas the Heddon frames always go to their proper places. As a matter of fact, then, the Heddon frames can be safely handled with more rapidity than any in previous use; thus securing all the advantages of close-fitting uprights without their old inconveniences.

2. I was actually charmed to see how quickly the queen can be found in this hive. There is really no place where she can hide behind either the uprights of the frames, or on any of the frame pieces, or on the combs, which, by a single inversion of their containing case, have all been made to completely fill the frames. Alarmed, now, by the introduction of both light and smoke into such a shallow case, she usually glides at once to the bottom-board, to hide herself between it and the bottom of the frames. If she does not show up when the case is lifted off, she can, as I have seen, be readily shaken out from such shallow and uniformly straight combs, so as to be easily secured.

To catch a queen with so little trouble, and with no danger of robbing, seems almost too good a thing to be believed, until it is actually witnessed; and the mere thought that such a feat is possible, must recall to many of my readers their weary queen-hunts, in the old styles of hives, under the broiling sun, and with the hateful annoyance of robber-bees.

3. Another important feature in this hive is the remarkable rapidity with which the exact condition of affairs in the brood-chamber can be ascertained. In less time than is needed to remove and replace a single frame in other hives, a Heddon brood-section can be lifted off; and from its being shallow enough to allow a good view of the combs from both above and below, even without shaking out the bees, the quantity of brood and honey, and every thing else essential to be known, having been learned by a few glances of an expert's eye, the section may be replaced before any robbing can be done.

4. The shape, size, and lightness of the parts composing this hive greatly facilitate all necessary manipulations in the apiary, and must therefore make it peculiarly acceptable to all who for any reason wish to economize their physical strength. A weak person who can not handle many hives needs it, and the strong man also needs it, that he may make all his strength tell, in the management of the largest possible number of colonies.

5. The simple way of holding the frames so firmly in place by thumb-screws admirably fits this hive for safe transport. I use the word *transport* in its widest sense, so as to include every movement of any of the parts of the hive, from the simple lifting-off of a section, to the carrying of a hive with bees for any purpose, to any distance, however short or long. I have seen a frame filled with comb, tossed about the room, and thrown out of a second-story window—also a whole section of such frames slid, and even kicked about a room, and all without any injury to the combs.

6. I am strongly impressed with the great advantages which seem to me must certainly be gained by one of the leading features of Mr. Heddon's invention and system of management; viz., the *divisible brood-chamber;* but as this is a point on which the season (April 17) gives me no opportunity to speak from actual observation, I relegate it to the many able bee-keepers who can speak from their own experience, remarking only, that, when capacious brood-chambers and surplus apartments are desired for any purpose, they can all be readily obtained in the best form by the Heddon hive and system.

7. Perhaps there was no feature in the Heddon hive which surprised me quite as much as the facility it affords for the use of the extractor. Indeed, when I first gave it my attention I was so ignorant of its scope as to suppose it was a conceded point that it could be used profitably only for the production of comb honey! This is one of the points where I can not speak from my own actual observation; but those in Dowagiac, who have had the largest experience, affirm confidently, that, in a given time, they can actually extract more honey by the Heddon system than they could with their Langstroth hives, and give these reasons for their belief:

Nearly all the bees can be easily shaken out of the combs of the extracting sections, and these quickly carried to a safe place, where the few bees not shaken out will soon leave them. The eight frames of a section may then be turned out in a standing position upon a table by a single motion —their regular shallow combs uncapped with unusual rapidity, and all their contents extracted at the same time; and nearly all of this work can be done *under cover.* Need any thing more be said on this subject, to those who have followed the tedious routine of shaking and brushing off the bees from each separate comb in the sun, and exposed to robber bees?

8. It need hardly be said to any good bee-keeper who has carefully weighed the above points in favor of the Heddon hive and system of management, how greatly it reduces in an apiary the liability of robbing. Those who have the Heddon hives will have no use for any bee-tent, when they can so easily find the queen, or can shake out the bees from any section when necessary, to examine it at leisure under cover.

In reading this enumeration of benefits to be had from Mr. Heddon's invention, it might seem that, if I have not exaggerated them, any one of a number of them must be worth, to a person who handles many colonies, at least the price of an individual right to *use his patent.*

I can only say, that I have sought to avoid all over-statements, and have, in addition to what I could see with my own eyes, questioned at much length some who have largely handled the Heddon hives, and have been from the beginning familiar with every step in the progress of his invention. I would, therefore, not be afraid to risk my reputation for sound judgment as to the great value of the forward step which he has taken, even if I did not know that my opinion accords so well with the experience of many who have had the opportunity to put the hive and system to the test of practical use.

It is proper that I should say, before closing this article, that I have carefully examined the claims of the Heddon patent, and the reasons which have been thought by some to invalidate them. Neither my acquaintance with the literature of bee-keeping nor my familiarity with our patent laws, nor any facts which have been alleged against the Heddon patent, lead me for a moment to question its validity.

History seems often to repeat itself. In my own day, how often it was declared to be enough to invalidate the claims of the first person who had invented a hive, which commended itself at once to those most largely engaged in the production of honey, to show that some one before me had used a frame in a bee-hive! It mattered nothing that I never claimed to have been the first to invent a movable frame; that my frame and way of using it were fully described, and that the few frames which antedated mine were of no practical account —still the attempt was for many years persisted in (I sometimes shudder now at the bare recollection of those weary years) to persuade the bee-keeping public that my patent was invalid.

On all sides patents sprung up, *using, but not claiming*, the most valuable features of my invention; and one bee-paper, having then the largest circulation, went so far as to accuse me of perjuries, which, if committed, ought to have sent me, in my old age, to the penitentiary. Thus were the feelings of my wife and children outraged; and even where no credit was given to such atrocious accusations, many honest bee-keepers were so misled as to believe that they had a perfect right to the free use of my movable frames, or were induced to pay for infringing patents the money which would have provided amply for me and mine.

I do not think that the bee-keepers of this country will ever suffer a similar outrage to be perpetrated either against Mr. Heddon or any other honest inventor and *benefactor*. L. L. LANGSTROTH.

Dayton, O.

I have read your communication over very carefully, even the second time, dear friend Langstroth; and while reading it I could not but admire the eloquence with which you present friend Heddon's claims. If we did not know how utterly impossible such a thing would be, we might be tempted to think he had employed you to advertise for him. I know, dear friend, that every word of the above comes honestly from the bottom of your heart, and is entirely unsolicited; but I do think you greatly overestimate. We have one of the Heddon hives in our possession, and are pretty familiar with all the points you make. No doubt all you say can be done; but I think nearly every point can be carried out and put in practice without using any hive different from that which we have had for years. I should greatly prefer to pass by this whole matter, and let it remain unanswered; but we have permitted you to use the pages of GLEANINGS to advertise a patent bee-hive, and to advertise the practice of selling individual rights. With the exception of friend Heddon, I believe that almost all the bee-keepers in our land have abandoned this matter of individual rights, and given it up as not the proper thing to do. In fact, you have, by your own writings, many times advised against it; and I am sure I should do wrong to let this matter pass as you have left it, without a protest.

Years ago you paid us a visit; and during that visit I discovered (I thought) that you felt uncharitable toward a good many of our prominent bee-men. In fact, you felt as if the world at large had done you a great wrong. I suggested that perhaps you were forgetting God's promises, and that dwelling on these things was marring your peace of mind, or something to that effect. One morning, when you first awoke, I came into your room and was greatly rejoiced to hear you say you believed I was right, and words to the effect that the world was not so very bad, after all. You told me you had decided to try to forget these things you had talked with me about, and not dwell on them. You not only made this resolution, but you put it in practice, and afterward wrote me you had become happier over it than you had been for years. I am now afraid, dear friend, that you are getting back where you were. I will not dispute but that a few individuals did you great wrong; but I feel sure it is bad for any one to let the idea creep into his mind that the world has never given him due credit, or that he has never been appreciated or properly rewarded. I think I stand where I can appreciate and fairly estimate and weigh what friend Heddon has done for the bee-keeping world; and I feel perfectly safe in saying that it is not just or fair or right or best that every one who desires to experiment with or use these things you have mentioned should be compelled to pay Mr. Heddon $5.00 for an individual right. If they wish to use his arrangements just as he has them, let them purchase a sample hive. If they want the whole matter explained in plain words, let them purchase Heddon's book. At the prices he charges for each, there is a good round profit. The matter of charging $5.00 for the right to use some arrangement of hives and fixtures is a bad precedent if nothing more. I would not stand side by side and in company with the class of men (with a *few* exceptions) who have been in years past taking money for *individual rights*, for all the gold in California. I have discussed this matter with friend Heddon in our private correspondence for a considerable time, and to considerable length. I have weighed all his arguments, and I presume he has weighed all of mine. I did not intend to speak in public as I have done; but after I consented to receive a letter for the pages of GLEANINGS, advocating "individual rights" to such an extent as the one above, I do not think it would be right for me to do otherwise than to give my opinion; and, dear friends, it is only *my* opinion; but I think that opinion is unalterable.

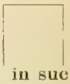
HONEY-BOARDS.

A MOST IMPORTANT PART OF A HIVE.

REFERRING to question 56, which you have just sent me, you know that, for years, I was almost alone in the advocacy of honey-boards, and never failed to try to impress my brother bee-keepers with the important advantages of their use, whenever opportunity presented itself. I suppose nearly all of your readers know that I invented the bee-space and break-joint arrangements in honey-boards nearly ten years ago; and now that it is evident that both of these arrangements are not only very valuable, but well nigh indispensable, the reason that the claimers of others' inventions are not trying to claim these features must be because I published them so long ago, and at a time when they had not yet learned the value of honey-boards, but were clamoring against their use, and advising placing the sections flatly upon the brood-frames. Well, now, up came the question of a queen-excluding honey-board, first urged by Bro. D. A. Jones if I am not in error (if I am, please correct me), and we at once set to work to make the best honey-boards embracing that feature. As I considered either the break-joint or bee-space features worth much more than the one of queen-excluding, I set about to make my honey-board queen-excluding. I tried placing the slats so closely together as to admit workers and exclude queens, but I soon found that wood could not be depended upon; and, worse than all, when the slats were placed 3/16 apart, instead of ⅜, the bees plugged the narrow spaces full of brace-comb. Mr. W. Z. Hutchinson, who was the first to try the same thing, like myself was compelled to give it up. Another experiment was to tack zinc strips, containing a row of queen-excluding openings over the spaces between the slats of my honey-board, and this worked perfectly. It made the board strong, and kept an even upper surface. Then came the thought of grooving the edges of the slats, and sliding strips of zinc into the grooves, as the honey-board was nailed up, which was quicker done, and made a neater and far more attractive job; and C. E. Boyer, W. Z. H., Dr. Tinker, and myself, all thought of this simple device, without the aid of each other; but as Dr. T. was the first to publish it to the world, no one opposed this priority, nor should they; and on page 203 of this journal for 1886, he fully described and gave it to the public, and therefore has precluded himself from getting any valid patent upon that feature, as intimated in a recent number of the *C. B. J.*

Uncle Samuel takes freely, but never gives back any thing. He is opposed to that, *en masse*. The honey-board made on the Tinker plan is not so strong as when the zinc is tacked on the upper surface of the slats, nor is it so sure to prevent all brace-combs from being built between the honey-board and the surplus receptacles, because the zinc is ⅛ of an inch further away than the general surface of the honey-board which is just the right distance—⅜ scant. But for all that, it is the popular way to make the combined honey-board, and no doubt will be so made, for the trade at least.

Now for Question No. 56. The best queen-excluding honey-board that has yet been devised can be made with the full sheet of zinc, and I think at a proportionately less cost, when made in large quantities. No. 56 mentions "transverse stiffening-slats," but seems to forget that these slats will take up room in the bee-spaces, and so add greatly to the chances for propolizing and crushing bees, as to be objectionable. But here we have it. Cut a sheet of zinc just the size the honey-board is to be; tack around its outer edge a piece of poplar (whitewood), ⅜ by ⅜ scant, to form the bee-space. This can also be formed with strips of tin, soldered on, previously bent in the shape here given.



Either one will be good, and the wood is cheapest and handiest to some manufacturers. Previous to putting on the rim, the sheet zinc should be perforated in such manner that one or two rows of openings will come directly over the top-bars of the frames below, and only unperforated zinc will come over the spaces between the top-bars below; thus we have embodied the break-joint and bee-space functions, and now to the most knotty problem of all, the stiffeners. Cut two strips of tin, which are each as long as the honey-board, and ¾ inch wide, and fold them this shape, Λ, which is a ⅜ triangle, tin on two sides. Now solder these strips on to the *under* side of the honey-board, and in such a position that their points will come directly between two top-bars, and thus you see they can pinch no bees nor induce propolizing, and yet they are full size and full strength, and will keep the honey-board as straight, and, in fact, it will be much stronger than the combined wood and metal. "But," says one, "suppose the laterally movable frames below should not be in regular position at all times; would not your tin V touch a frame and make trouble?" Seldom, I think; but with my new hive the positions *must* always be such that perfect harmony of arrangements shall exist at all times. This device will not be patented, for I have all I care for in my claim on the honey-board in combination with the main features of my new hive.

I wish to say, before closing, that we have as much propolis stored here as in any place I ever saw. I find that nearly all bee-keepers make the error of thinking that *their* location is worst of all for propolis. JAMES HEDDON.

Apr. 23, 1888.

Since the above came to hand we have received the following :

Friend Root:—Day before yesterday I got to thinking about the honey-board I wrote to you about, and particularly about the formation of the rim, which forms the bee-space and strengthens the whole construction, and I conceived the idea of turning up scant ⅜ on all sides, and soldering at the corners, which would greatly facilitate and cheapen construction, and make a stronger and better board ; and in order to have the supers adjust nicely on so narrow a surface, make the thing ¼ inch narrower and shorter than the hive, so that the edges of the honey-board will retreat from the extreme edge of the hive, *just ⅛ on all four sides.* This thin edge will facilitate in quickly adjusting the supers without crushing bees.

One more point: If you can set the dies as you choose, set them so that the zinc between the two rows of perforations will be *only half as wide as usually left.* You see, I want the two rows of openings closer together. The reason is, I wish to keep the outside of the openings from coming quite so near over the spaces between the frames below. This is no vital point; but if convenient, why not have it just right? JAMES HEDDON.

Dowagiac, Mich., Apr. 26, 1888.

I would say to our readers, that the article above was suggested by one of the questions sent out periodically to our corps of contributors. Mr. Heddon, being one of this number, thought best to answer it more fully. The question to which he refers has not yet appeared in the Question-Box, but it will very soon. In order that our readers may get more clearly before them the point at issue, we submit the question below:

QUESTION 56. *Do you think a perforated zinc honey-board, wood-bound, so as to provide a bee-space above and below, properly strengthened through the middle by a transverse slat, would answer the purpose of an ordinary slatted wood zinc honey-board?*

Now, then, friend Heddon, we are ready to deal with Question 56. Yes, we do think the best queen-excluding honey-board that has been yet devised can be made of full sheets of zinc, and not only at proportionally less cost, but only a little over one half the price of slatted wood-zinc honey-boards. We have made such honey-boards with a bee-space on both sides, for about a year; but heretofore we have never considered them quite equal to the slatted wood-zinc boards. Very recently we have been experimenting on different modes of constructing them, and we now have a full-sheet zinc board, wood-bound, break-joint, and with sufficient rigidity through the middle, without stiffening. See engravings and description elsewhere in this issue. Perhaps we should add, that we tried various modes of stiffening. If any is required at all, a three-cornered slat, point downward, is the best, and that fastened on the under side of the zinc transversely. You are aware, that, the shorter the length of the stick, the greater is its strength. Therefore such a stick will be stronger crosswise than lengthwise of a honey-board. Not only that, but it can rest directly on and across the frames. In an article elsewhere in this number you will see we think it necessary to have one of our honey-boards strengthened through the middle, and with wood, in the manner described. You mention strips of tin in the form of a V. We find that such stiffeners, made of even the heaviest tin, are very fragile indeed, not even possessing any more rigidity than the zinc itself. Your manner of forming a rim around the honey-board is doubtless all right, on the Heddon hives, or on those hives which have no beveled edge; but in the Simplicity, a bee-space must be provided for on *both* sides; hence we use, for a rim, strips of wood a trifle over $\frac{1}{2}$ inch thick. On the inside of each of these strips a saw-kerf $\frac{3}{16}$ inch deep is made. A sheet of zinc a trifle smaller than the inside dimensions of the hive is fitted into each of the saw-kerfs of each of the side and end pieces. These pieces are then nailed at the corners. As to your last suggestion, contained in the second letter, we suppose such a honey-board could be made; but for reasons just explained, it would not do for hives with beveled edges, for it would provide for only one bee-space. In regard to the setting of the dies, we discuss this elsewhere.

IS IT A LOTTERY?

DR. C. C. MILLER TAKES US TO TASK FOR INSERTING AN ADVERTISEMENT OF THE AMERICAN GARDEN.

AND now, friend Root, you've put your foot in it, sure. Oh! won't you catch it, if some one happens to read closely that "ad" of the *American Garden*, on page 239? The unrelenting enemy of all dishonest transactions, lending his aid to publish a lottery scheme! Now, how much "hush money" will you give me to say nothing about it? A half-dollar, or even a quarter, might go a good way with me, and I await sealed proposals.

Triumphantly yours,— C. C. MILLER.
Marengo, Ill.

Now look here, doctor, I wonder if you suppose I am going to take that half-dollar, and get into the mire deeper and deeper? Ernest and I both felt troubled about that offer of the *American Garden;* but you know there are differences of opinion in these matters, and the *American Garden* is a great big institution, and they are very nice people too. Now, you editors of the *American Garden*, will you please answer Dr. Miller yourselves, then it will be off from my shoulders entirely? I want to say, however, that I never like any form of advertising that gives one of your patrons some privilege you do not give to others, especially where chance or "happen-so" decides who is to be the privileged man and who is not.

HEADS OF GRAIN

FROM DIFFERENT FIELDS.

THOROUGHLY RIPENED HONEY A CONFECTIONERY.

IN the *Canadian Bee Journal* of April 18, under the head of Our Own Apiary, friend Jones gives an incident in regard to extra super-ripened honey. As the matter will prove to be of considerable interest to our readers, we give the item as follows:

> At our home we have had a coal-stove burning for over two months without interruption, keeping the temperature high, consequently very dry. Near this stove is a pantry with only a lath and plastered wall between. In the pantry was a large fruit-dish containing several pounds of very fine, well-ripened honey. The dish had been sitting on the shelf next the wall for about a week, and when it was brought out the spoon was resting on the top, which was tough and had a glassy appearance. When pressed with a spoon it seemed like a paper covering. We scratched a hole in it to ascertain the depth, and found it to be between one-quarter and one-half an inch. When placed on paper it looked like soft wax, and one would hardly believe that honey, by a hot dry atmosphere, would evaporate its moisture and become so thick. We thought this a good opportunity to test the difference in quality and flavor; taking some of the honey from a sixty-pound tin and comparing it in texture, color, and flavor with this better ripened, it did not seem the same. The contents of the tin was specially selected, and we considered it as good as could be produced; but tests go to prove that the honey in the dish was so much superior that any one comparing them would not hesitate to give two or three cents a pound more for it. We do not know how much loss there would be in evaporating honey to that extent; but we suppose the loss to be from ten to twenty per cent. We believe this class of honey would find a market at a price sufficient to warrant the experiment. It would be necessary to place it on very shallow vessels, and subject it to a very low temperature that the color might not be changed. We fancy a room properly arranged, with coils of steam-pipes to raise the temperature to a desirable height, at the same time allowing a current of air to pass through, would soon reduce our ordinary honey to the consistency of jelly. It could then be placed in tumblers, or any kind of vessel; in fact, paper bags could be manufactured of a size and shape suitable to hold it, and sold in 5c., 10c., 15c., and 20c. packages. It might even be sold by the penny worth, which would increase its consumption.

HOW TO EMPTY THE HEDDON CRATE.

1. I should like to learn how to empty the Heddon case (old style) without breaking the sections all to pieces.

2. What is a dummy in a hive; and how made?

Dayton, Mo., Apr. 24, 1888. L. M. WAGNER.

We have never had any experience in removing sections from the Heddon case. Perhaps some one who has experience can enlighten you. After contracting the brood-nest from ten to six or eight frames there will be a space left by those frames which have been removed. Before putting on the honey-board and the surplus case this space should be filled with a division-board, or "dummy," as it is called. A dummy is, therefore, something to fill up the space previously occupied by frames. Unless this space is so filled, the bees are pretty apt to build combs in there, even if a thin division-board be used to separate the brood-nest proper from this vacant space in the hive.

HOW TO MELT OLD COMBS OFF FROM WIRED FRAMES.

How long do you consider it advisable to keep the same brood-frames, built on foundation, in the brood-chamber, for brood-rearing, and how can the combs be most easily removed from wired frames, for melting? M. W. MOE.

Denver, Col., Apr. 21, 1888.

Keep the brood-combs just as long as they are even and good. We should never destroy them simply because they *are* old. Age does not necessarily impair their usefulness; on the contrary, it rather toughens them. Combs may last ten or fifteen years, depending, of course, on the usage they have had. If you have wired combs that are uneven, worm-eaten, full of holes, or otherwise unfit for use, put them in the solar wax-extractor. We know of nothing better to take old combs clean off from the wires and leave the frame fit for new foundation. We tried some old combs in the solar wax-extractor last summer. Although old Sol takes his time to do it, he charges nothing for his services, if we give him any kind of a chance. If the comb is very old, it may be necessary to lift the lid of the extractor, and crowd the cocoons out from between the wires with a small stick.

FIGHTING INSECTS.

I will send a few suggestions for fighting insects. For potatoes, walk through the rows, turning the leaves with a stick. The eggs will be found in clusters of from ten to thirty, and are easily destroyed.

The cabbage butterfly lays her eggs on the outside of the outer leaves. These are more easily destroyed than the worms.

Keep the currants so well pruned that every leaf can be seen. Watch carefully for any that are perforated. On these you will find the newly hatched worms. By destroying a leaf you will destroy worms enough to mutilate and render disgusting a whole bush. If you look the bushes over three times a week your currants will be safe. Of course, it is better to catch the parent insect before the eggs are laid, if you can. I do not know the moth that lays eggs for currant worms. I should be glad to learn how to save the bushes from the worm that bores through the stalk. L. W.

Delavan, Wis., May 5, 1888.

OUR QUESTION-BOX,

With Replies from our best Authorities on Bees.

All queries sent in for this department should be briefly stated, and free from any possible ambiguity. The question or questions should be written upon a separate slip of paper, and marked, "For Our Question-Box."

QUESTION NO. 52.—*Do reversible frames produce the results claimed; i. e., when reversed, cause the bees to place the honey in the sections?*

I don't know. GEO. GRIMM.

Not with me. H. R. BOARDMAN.

I never tried it. E. FRANCE.

Not according to my experience.
PAUL L. VIALLON.

I know but little about reversible frames.
O. O. POPPLETON.

I presume they usually do. I know that sometimes they don't. C. C. MILLER.

Reversible frames for the purpose set forth are largely things of the past. G. M. DOOLITTLE.

Not always. With a large hive and a small queen it will make bad matters worse. P. H. ELWOOD.

I can not say from personal experience; but from what I have learned, I think they do.
MRS. L. HARRISON.

This is one of the new methods which promised more in theory than it has proven in practice.
L. C. ROOT.

I take no stock in reversible frames, and my experience does not prove the result claimed for them. CHAS. F. MUTH.

Yes; the bees do not like to leave their honey near the entrance, below the brood, for it is not so safe there. DADANT & SON.

Not always; but if the brood-frames are filled to the bottom with brood, reversing will do as claimed. I have tried it. DR. A. B. MASON.

They do, if reversed at the proper time and under the right conditions, all of which have been explained in the journals. W. Z. HUTCHINSON.

I have valued reversible frames because they were filled completely with comb, which was fastened on all sides, and they, when properly manipulated, will send reluctant bees into the supers.
A. J. COOK.

I had not confidence enough in reversible frames to try them. It is tolerably plain, however, that, when bees will leave honey in broken comb placed outside their door they will not move that inside merely on account of its position. They will move it when they want the space for brood.
E. E. HASTY.

Yes, if done at the right time. Not only this, but they more than pay for their extra cost, from the fact that with them we can get the frame completely filled with comb, leaving no lurking-place for bees.

Friend Root, I hope none of your readers will imagine that my standing firm for reversible frames is because I have a patent hive in which they suppose invertibility to be the main feature. Such is not the case. It would be to my interest in dollars and cents, if it should prove that inverting is destructive to the brood, because in my divisible brood-chamber I have the only other principle which will produce the desirable result sought by inversion, and much more perfectly.

JAMES HEDDON.

Well, friends, the above replies are a little singular—especially when we recollect that, not very long ago, this matter of reversing frames was talked about, not only all over our own country, but in the journals across the ocean, and many imagined it was going to make quite a revolution in our industry; and now it transpires that a great many of our prominent honey-raisers have tried it a little, and some not at all; and most of the others have dropped it as of no particular account. It reminds me of our old friend Benedict, at the Ohio State Fair. He was exhibiting a hive that permitted the frames to be used one side up as well as the other. In fact, any one of the four sides could be placed uppermost, without any difficulty. When I suggested this as a valuable feature in the hive, he said he had never tried reversing them at all—didn't want them reversed, and wouldn't have them reversed. Now, another peculiarity of humanity comes in here. A great many people will finally slip back into the old track, even when a new process or new method is a good deal better—perhaps I should say *considerably* better, especially if the new way requires a little forethought and preparation. When combs get broken loose in the frames, I very much like the idea of placing them upside down, to enable the bees to fasten them securely; but where the combs are properly wired, I presume we shall seldom have occasion for this.

QUESTION NO. 53.—*In localities where white clover has been entirely killed out by the drought the past summer, and there have been no fall rains to start the plant from the seed, what is the prospect for a crop of clover honey next season?*

Bad. DADANT & SON.

Very poor. DR. A. B. MASON.

Unfavorable. H. R. BOARDMAN.

I should say, very poor. O. O. POPPLETON.

Very poor indeed, I should say. JAMES HEDDON.

Very poor; with a dry spring, none. MRS. L. HARRISON.

As you state it, I should say very poor. G. M. DOOLITTLE.

Quite slim, unless there is basswood or fall flowers. W. Z. HUTCHINSON.

Poor, as far as clover honey is concerned. I don't think white clover will blossom much the first year. E. FRANCE.

Pretty poor prospects under those conditions; but you will find that the drought did not entirely kill it. GEO. GRIMM.

My locality is one of those unfortunate ones, and my prospects for the coming season are rather slim. But a favorable spring may help us out considerably. CHAS. F. MUTH.

If the following season should be favorable, I have no doubt but a new crop will appear. I have never known white clover to fail to start when the season was favorable. L. C. ROOT.

I much fear for the crop, so far as the white clover is to furnish the nectar in such cases. In the autumn of 1886 we had a great drought here. Last season we had almost no white clover. A. J. COOK.

I never knew the clover to fail to come up every year, though I have seen it so dry that nearly every thing was parched; but I have seen it fail to secrete honey when the ground was a complete mass of clover-bloom. PAUL L. VIALLON.

Prepare for a large crop of clover honey. It is probably not entirely killed out; and if the winter and spring are favorable for both clover and bees, a smaller number of flowers well filled with honey may give you a crop. P. H. ELWOOD.

Bee-keepers are somewhat akin to farmers—their crops are frequently "all killed out," and yet come in heavy enough to glut the market. If last year's clover was actually all dead, it is not likely that spring seedlings would bloom enough to give a crop of surplus honey. E. E. HASTY.

If killed early enough, no seed was formed, and the only hope is from seed of previous years that has lain dormant. I should think that would be limited in amount, and I don't know whether it blooms well the first year it comes from seed. I'd give more for the opinion of one good agricultural-college botanist than for the opinions of the whole batch of us. C. C. MILLER.

The sum and substance of the above seems to be that good yields of honey sometimes occur when we do not expect them; and, on the other hand, they often fail when we *do* expect them, so many causes affect the matter, both favorably and unfavorably. I do not think the white-clover bloom will be very much less in our locality than it usually is.

QUESTION NO. 54.—*Is it profitable to the bee-keeper to furnish buckwheat seed free of charge to all farmers who promise to sow it within a radius of a mile and a half of the apiary?*

I never thought that it was. CHAS. F. MUTH.

Yes, and I much prefer the Japanese variety. DR. A. B. MASON.

Yes, to a limited extent; probably to the amount of three bushels. MRS. L. HARRISON.

Not in this vicinity, as I never saw the bees get any honey from it here. PAUL L. VIALLON.

I should say yes. I would do it to the extent of 25 acres for each apiary of 75 colonies. E. FRANCE.

Not in this locality. Not a pound of surplus from buckwheat have I received for the past ten years. G. M. DOOLITTLE.

Not on soil like this where buckwheat has no honey at all. Where buckwheat has honey it pays well. GEO. GRIMM.

In many localities it would not. I know of no way but for each bee-keeper to test his own location. L. C. ROOT.

It would not be, in my locality, as buckwheat gives a good yield of honey only two or three years out of ten. E. E. HASTY.

In some localities it might be profitable, but I abandoned the plan as unprofitable, after trying it several years. H. R. BOARDMAN.

I should say no. Often buckwheat furnishes no honey. I should say it would be better for the bee-keeper to rent some land and sow for himself.

A. J. COOK.

We thought so till we made a sale of 28 barrels of honey to Thurber & Co., and they made the express condition that there should be no buckwheat honey in it.

DADANT & SON.

It might one year in three, in our locality. Many farmers now sow buckwheat, and we furnish no seed; should we begin furnishing the seed free, all the farmers who now sow and furnish their own seed would call on us for seed.

W. Z. HUTCHINSON.

Previous to the past six or seven years, buckwheat yielded honey largely where I was, and it would have paid to do as suggested in the question. Since then it has yielded almost no honey at all, and it would not have paid to furnish seed.

O. O. POPPLETON.

No, sir, it is not. Every bit of agitation you stir up among your neighbors about the honey-supply will cost you $5.00 where you get one, by way of their going into the business in your field; and especially is this the case if you haven't three or four hundred colonies of bees in your apiary.

JAMES HEDDON.

In some cases, yes; in some, no. Likely, oftener no. Where it is a profitable crop for grain there is usually enough sown; when not profitable for grain, does it yield much honey? I should say, if it usually yields honey and not enough is otherwise sown, it would pay well to furnish seed to make a plentiful pasturage for his bees. C. C. MILLER.

No. Buckwheat is very uncertain in yielding honey. Alsike clover is a better honey-plant to introduce, but I should not buy any seed for my neighbors, nor tell them I was anxious to have them sow it for its honey-producing qualities. Human nature is such that you will usually have more buckwheat and alsike about you if you simply recommend them on their merits for forage and grain.

P. H. ELWOOD.

I think it profitable for us to furnish buckwheat and alsike clover, more especially the former, to keep the bees out of mischief, and to counteract robbing. It is worth something to me to see all hands pile out in the morning in great droves, in the direction of some farmer to whom I have furnished buckwheat free of charge. It is true here, as well as with others, that we seldom get very much honey from buckwheat; but there are very few seasons, however, when the bees do not work on it in great numbers in the forenoon, and evidently do their best to make a success. Whatever pleases the bees pleases me; therefore I think I should continue to furnish buckwheat. Prof. Cook thinks that the bee-keeper should rent some land, and raise it himself. This will do, providing he is sure of getting a good price for his grain—such prices, for instance, as we often get for the Japanese, and are likely to get. But I would much rather furnish the farmers with grain than to rent land, sow the seed, and then sell my crop for 60 and 75 cents a bushel. I have tried both ways.

NOTES AND QUERIES.

SPRINKLING OF ITALIAN BLOOD.

I SEE you quoted in the Indiana *Farmer* as saying that a very little sprinkling of Italian blood would almost banish the bee moth. As I am unacquainted with this remedy, I should like to know what Italian blood is—what it costs, and how to apply it.

J. B.

[The letter above will prove to be a little amusing. We must beg our friend's pardon for making our language ambiguous—so much so that he even got the idea that the remedy called "Italian blood" is administered in the form of a *spray*. When we used the term "sprinkling of Italian blood" we meant the crossing of a new race of bees with the common bees, just as we say that a certain fowl having a few feathers of a Brahma has a sprinkling of Brahma blood; or that a certain cow has a sprinkling of Jersey blood. To make our meaning perfectly plain, we will tell our correspondent that, if he desires to get rid of the moth worms in his hives, he should kill the black queens and introduce Italian queens.]

BEES ON SHARES.

I have changed locality, but still have bees. What is the usual way of farming bees on the shares?

Orbisonia, Pa., April 26, 1888. J. W. OLEWINE.

[We do not recommend keeping bees on shares. If you do, you should have one-third of the honey or a fourth of the honey and increase. Some think it about right to share all profits alike. This question, or, rather, a similiar one, is propounded to our corps of contributors to the Question-Box department, and will appear in a month or so.]

LIZZIE COTTON.

I much dislike your apologetic remarks about Lizzie Cotton. In my view it is mistaken charity. She is not trying to do any better, any more than a thief is doing better who steals less this year than last because the danger of detection is greater.

C. C. MILLER.

Marengo, McHenry Co., Ill., April 18, 1888.

HOW LONG COMBS WILL LAST.

A bee-keeping neighbor says that, after bees have used brood comb two years, it is necessary to cut it from the frames and give them new comb. Is that true? L. A. DUGGAN.

Cuthbert, Ga., Apr. 12, 1888.

[Your neighbor is mistaken, friend D. Combs will last from 3 to 15 years. In fact, reports have been given of combs which have been in use for over 20 years. It depends upon the amount of usage they have had, and whether wired or not.]

AFTER A CONFINEMENT OF 161 DAYS.

I put my bees on summer stands April 21st, after a confinement of 161 days. They came out strong and in good condition; 16 colonies consumed an average of 14½ lbs. per colony. I think the picture of Mrs. Heater's exhibit at the Nebraska State Fair should be put in the next edition of the A B C, opposite Mrs. Culp's, so we can show our friends what women can do. FRANK DURAND.

Esdaile, Pierce Co., Wis., Apr. 27, 1888.

DRY APRIL IN ILLINOIS.

This month has been a very cool one. While the ash-leaved maples were blooming, ice the thickness of window glass formed at night. The last freezing was the night of the 25th. It is quite warm now, and fruit-bloom, what little there is, is just opening. Fruit-trees are almost all dead, killed by drought and severe winters; only now and then a cherry, where there used to be dozens, and a few crab-apples. No peach-bloom. I have not seen any white clover. This April is the driest one I remember. "What will the harvest be?"

Peoria, Ill., April 30, 1888. MRS. L. HARRISON.

I should like to know if the carriage on your saw-table slides, or is it stationary?

Birdsall, N. Y. O. E. BURDEN.

[The carriage to our cross-cut saw-table slides, or, rather, rides, upon wheels, the latter running upon three tracks. On page 136 of the A B C book you will find further particulars in regard to it. On our combined saw-table, the figure 4 slides upon an iron track.]

PAINTING HIVES.

Have you had any experience in painting beehives with bees in them? Would there be any bad results? W. H. MCDOUGAL.

Sugar Grove, Pa., Apr. 2, 1888.

[In fair weather you can paint your hives with bees in them just as well as not. When our hives need a fresh coat of paint we put it on in the fall or during that time of year when the bee-keeper has the most time, and the weather is suitable.]

ACID IN SUGAR SYRUP.

Will you please inform me what acid is used in sugar syrup to hold in solution, or keep from becoming candied, for the purpose of bee-feeding?

Abingdon, Ill., March 26, 1888. J. W. BAYS.

[Tartaric acid is generally used in making syrup for bees, when it is necessary to use acid. Vinegar is sometimes used. As for ourselves, we have not found it necessary to add any thing to the syrup. Many bee-keepers, however, recommend it—especially Dr. Miller.]

GRANULATED SUGAR AND SAP.

How will sap from sugar-trees do to mix with granulated sugar, to make syrup to feed to bees in spring? WILLIAM T. LEWIS.

Utica, Ill., March 30, 1888.

[Friend L., the sap is all right, so far as it goes, but it contains so little sweet that I do not think you would be able to perceive the difference—that is, to any extent, between using sap and water. Sap alone, given to bees, fresh from the tree, is somewhat of a stimulant—that is, a little better than feeding them water. If you are interested in this matter, you had better read our little book, "Mr. Merrybanks and his Neighbor."]

WHERE IS THE BEST PLACE TO START AN APIARY?

How do bees do in Southeastern Virginia, on the James River? Also in Central Mississippi? I kept bees in Wisconsin, but the winters were too hard for success. I am going where I can put my time to that industry. J. T. KENNEDY.

Alexandria, Hanson Co., Dak., March 28, 1888.

[Friend K., it is very difficult indeed for us to give any intelligent answer to such questions as yours. Your better way is to write to some bee-man in the localities you mention; or by going over the back numbers of GLEANINGS you will find reports, more or less, from almost every State. If you will read the articles from Dr. O. M. Blanton, of Greenville, Miss., you can form a good idea of his locality.]

BAD SPACING.

My bees tie the frames all together. What is the cause, and what the prevention? How far apart ought the frames to be? How often does a queen mate? C. M. FARRAR.

Confidence, W. Va., Apr. 27, 1888.

[Why, friend F., I should judge that your combs were badly spaced. They should be 1⅜ inches from center to center. If you can not get them together as close as this, shave them down so that they will. One-and-one-half-inch spacing will do very well; but for general purposes, 1⅜ is a little better; and this spacing is preferred by the majority of bee-keepers.—A queen meets a drone only once in her lifetime. There has been some speculation to the effect that the queen does sometimes take a second wedding-flight; but no very positive proof has ever been produced to substantiate it.]

JUVENILE DEPARTMENT.

Every boy or girl, under 15 years of age, who writes a letter for this department, CONTAINING SOME VALUABLE FACT, NOT GENERALLY KNOWN, ON BEES OR OTHER MATTERS, will receive one of David Cook's excellent five-cent Sunday-school books. Many of these books contain the same matter that you find in Sunday-school books costing from $1.00 to $1.50. If you have had one or more books, give us the names that we may not send the same twice. We have now in stock six different books, as follows; viz.: Sheer Off, Silver Keys, The Giant-Killer; or, The Roby Family, Rescued from Egypt, Pilgrim's Progress, and Ten Nights in a Bar-Room. We have also Our Homes, Part I., and Our Homes, Part II. Besides the above books, you may have a photograph of our old house apiary, and a photograph of our own apiary, both taken a great many years ago. In the former is a picture of Novice, Blue Eyes, and Caddy, and a glimpse of Ernest. We have also some pretty little colored pictures of birds, fruits, flowers, etc., suitable for framing. You can have your choice of any one of the above pictures or books for every letter that gives us some valuable piece of information.

CONDUCTED BY ERNEST R. ROOT.

A LITTLE STORY FROM UNCLE AMOS, WITH A PICTURE.

A GOOD many years ago there was a man who had loved himself better than he had loved God. You know, my little friends, that the Bible says that we should love God before every thing else. I do not know whether this man knew about that text then or not; but if he did, he was too fond of having his own way, and going ahead with his plans, to care very much about it. Yesterday we were planting some raspberries out in the garden. After we got the plants set in the furrow all nice, where they ought to be, we took old Charlie (that is one of our big horses) with the cultivator, to throw the dirt back into the furrow, back up against the raspberries. Now, in order to do this just right, we wanted Charlie to walk on top of the furrow, instead of down in the furrow. Well, Charlie is a very intelligent horse. He understands how to do most work almost as well as some boys do. But the ground was very soft, and it bothered him to walk on top of the soft ground, so he kept getting over into the raspberries, or else getting over into the furrow on the other side. He knew what we wanted, but was contrary, and he did not like to work where we wanted him to. Every little while he would try to step down where it was easier walking, and then he made mischief. If the man who had hold of the cultivator would "holler" at him, and say, "Get up, there!" he would get right up where we wanted him, but he stayed there only a little while. Did you ever see boys and girls who were contrary? They knew what was wanted of them, and what they ought to do, but they very much preferred to do something they knew was forbidden. Well, this man I want to tell you about was a good deal like such children, and like old Charlie; but he was a man grown up, and we expect more of a man than we do of a horse or even of a little child. The Bible says God created man in his own image. That means that he gave him reason and sense, and ability to comprehend. This man knew all this perfectly well; but his inclinations were so strong in certain directions, and he was so stubborn and contrary, that he did not pay much attention to anybody or any thing unless he happened to feel like it. His father and mother talked to him about staying away from meeting, and doing things he ought not to do; and his brothers and sisters talked to him. Some of them who were a good way off wrote him kind letters; but he still persisted in doing as he pleased. When he was a boy, I believe he used to be truthful, as a rule; but when he got into this contrary and stubborn spirit, he began to learn to be untruthful, and to try to deceive his father and mother and brothers and sisters. When they told him he ought to be a Christian and a good man he even tried to make it appear that he was a Christian and that he was a good man and meant to do right; but he didn't for all that; and if he had kept on in the way he was going, the probabilities are he would have been by this time a *terribly* bad man. God, also, often spoke to him, through the voice of conscience; and finally, as a last appeal, as it were, God sent a little messenger to him to plead with him. Would you like to see that little messenger? Well, right below, while I am writing, is a picture of her and a picture of the man.

THE MAN WHO WAS CONTRARY, AND THE MESSENGER GOD SENT.

The messenger was a little blue-eyed girl-baby; and almost as soon as this man began to get acquainted with her, he began to feel the influence of those appealing blue eyes. He used to play with his girl-baby a great deal; and long before she learned to walk, he would take hold of her little hands and say, "Now, then, 'way up high! Papa's baby." Mamma used to remonstrate sometimes, and tell him her little feet were hardly stout enough to stand "'way up high" on them just yet. But she was stout and strong, and loved her papa; and she was very ambitious to show off her strength and intelligence. Well, papa taught the baby to straighten up on his knees, "'way up high," and the baby taught poor papa to come "'way up high" in another way. Her childish face rebuked his selfish and unkind spirit; and when she was not very much older than she looks there in the picture, this man, who had so many years been tending toward an attitude of heart that fears not God nor man, changed over. Some way all at once he got a glimpse of himself just as he was. I do not suppose that anybody will ever know how bad that man felt, nor how hard he cried when alone by himself, to think how ungrateful and wicked he had been. He stopped doing every thing that was bad that he knew of, and stopped being contrary. He went to meeting and to Sunday-school, and saw all the children there. He listened to the little hymns that they sang; and through the influences of the little girl at home—yes, and his other children—he became a good deal like a child himself. I am afraid he does not always stay just as childlike as he was during those days, but he tries hard, I am sure; and he prays to God every day for help, that he may be, through all his life, like a little child; for the Bible says, you know, that "of such is the kingdom of heaven." And this is the end of the story from Uncle Amos.

JUVENILE LETTER-BOX.

REPORTS ON THE SOURCES AND COLOR OF POLLEN.

We have to thank our young friends for so generously responding in regard to the sources and color of pollen. We feel sure that they have gotten together in a short compass considerable valuable information on the subject. Even the older folks may learn something they did not know before; but there may be some mistakes, possibly, as to the real color of pollen. If so, our friend Doolittle, who wrote on this subject on page 205, is fully competent to correct.

POLLEN FROM SOFT MAPLE AND WATER-ELM.

Our bees began to gather pollen March 30, from the soft maple. The color is green; and two days later, yellow pollen from the water-elm.

Ballstown, Ind., Apr. 2, 1888. ELMER DAVIS.

POLLEN FROM THE ELM.

The bees brought in pollen to-day for the first. It was of a light yellow color, and came from the elm.

Manchester, N. Y., Apr. 2, 1888. Perry Briggs.

DARK POLLEN FROM THE ELM.

Our bees brought in the first pollen Mar. 31. They got it from elm and maple. The first is a dark yellow. The second is yellowish red. My papa has 73 colonies of bees. I wrote this letter myself.

Amos Grisso, age 8.

New Carlisle, O., Apr. 1, 1888.

POLLEN FROM THE CALLA LILY.

My brother, 7 years old, and myself, 9 years old, saw yesterday pa's bees get pollen from our calla lily. It was outdoors, and the bees flew and buzzed and shook their wings, and acted so eager that the flowers were full of bees. They carried the small white pollen grains on their legs into their hives. They stayed on the blossoms after the pollen seemed to be all gone. Roy C. Gere.

E. Springfield, Erie Co., Pa., Apr. 2, 1888.

POLLEN OF DIFFERENT COLORS FROM THE MAPLE, AND AN EXPLANATION.

As this is a warm day, I went out into the apiary for the purpose of watching the bees to see if they were carrying in pollen. Sure enough, there they were, just rolling it in. I got down in front of one of the hives to examine the pollen, and found it was yellow. I watched their course, which was directed toward a maple-tree that stood in the road, by the fence; then I got up on the top of the fence and caught one of the bees that was on the maple, and found it to be the same pollen that the bees were carrying in. They have not commenced carrying in from the elm yet. Edward Quinby.

Edenton, Ohio, March 31, 1888.

Very good, Edward. If you keep on investigating in just the way you have mentioned, you may be some time as great a bee-man as your illustrious namesake, father Quinby. You have proved conclusively that the pollen from maple is yellow; but our next friend gives equal proof that the maple also yields white pollen. I will offer as an explanation, that there are not only different kinds of maples, but the same kind of maple has flowers of different colors. In planting our basswood orchard we noticed some of the little basswoods were red and some were yellow. The buds show in a marked manner this peculiarity. It is not only maples and basswood that are thus variously colored; but in the garden we see tomatoes and peppers red and yellow, while the general peculiarities of the fruit are exactly the same in other respects; and, if I am correct, we sometimes have soft maples that give us pink pollen.

WHITE POLLEN, AND WHERE IS IT FROM?

Yesterday 29 of our colonies brought in the first pollen, but not a great deal, because it was too cold for them to fly very much. To-day they flew very nice and strong, and brought in a good deal of pollen. I then went down in the swamp, and saw where they got the pollen. I saw some huckle clusters that were out; also some alders, and the bees worked at them nicely, so I thought I would go home. When I got there I went to the bee-hives and there I saw that the bees brought in two kinds of pollen. One kind was yellow, which they got from the huckle and alder. The other kind was white-looking pollen. Then I wondered where they got that kind of pollen. I then caught a bee by the wing, and took some of the pollen from its legs, and ate it. I found that this pollen was very sweet, and so I thought they must get that from the soft maple, so I had to go in the woods again, and there I found a middle-sized maple-tree. I looked at every little limb, and every bud was out in blossom. I took off some branches, and brought them along home, and showed them to my pa, and he said, "Ah! that is very nice at this time of year. Did you see some bees on these blossoms?"

" Yes," I said, " bees with the same kind of white pollen they brought home."

He said, "Well, there is just where they get it, because it is sweet." Michael Paridon.

New Portage, Summit Co., O., March 31, 1888.

POLLEN FROM SAWDUST.

On the 3d of April our bees carried in their first pollen, which was from sawdust. I could not believe the bees got pollen from it, so I went to a sawmill near by and saw lots of bees loading pollen and carrying it away. They work on sawdust better when it is wet than dry. The pollen from sawdust was fine, and a little sweet. The color is a light brown. On the 4th of April our bees carried in their first pollen from wild flowers. It was very yellow. Our bees have carried in some honey. The first was quite bitter; but yesterday (the 9th) pa looked at the bees and said the honey was sweet. I do not know what the bitter honey was from. Skunk cabbage is in blossom, and I think the bees are working on it. Pa commenced bee-keeping four years ago this spring, with one swarm, and now has 29 swarms and 3 nuclei.

Bertie Spitler, age 13.

Mosiertown, Pa., Apr. 10, 1888.

Thank you, Bertie. You say the pollen from sawdust is a little sweet. I have noticed this, and felt a good deal surprised, especially as the sawdust had no sweet taste at all before it was gathered by the bees, and I decided at the time that the bees carried honey from their hives to mix with sawdust so as to make a sort of dough that they can pad up into little biscuits, to put on their little legs. Wheat and rye flour, after being padded up on their legs, and carried to their hives, has quite a sweetish bee-bread taste that it did not have before. We do not know just how the sawdust helps them, but when no pollen is to be had from the flowers, it no doubt supplies them with something they need, but can not get from honey alone.

FACTS FROM A LITTLE GIRL, ON COTTON-GROWING.

We plant cotton-seed here in April and May; chop it to a stand 16 to 18 inches apart, with hoes, when it is two or three inches high; then it is to be plowed and kept clean till it grows and blooms, and the bolls form and mature. This is usually in August. We plant in drills three feet apart. Its branches meet in the rows. It grows between three and four feet high, and bolls scatter along on the branches, ranging from fifty to one hundred to a stalk. The bloom is something like the hollyhock. It opens white, shuts up, and turns red, one day each. This bloom is where the yellow-banded Italians get our cotton honey. The average picking is 200 lbs. a day. It takes about 1500 lbs. in the seed to make a bale (500 lbs. lint). MAGGIE DILLEHAY.

Milford, Ellis Co., Tex., Dec. 24, 1887.

Thank you, Maggie. You have given us quite a history of the cotton-plant, in a few words. It is the more interesting to me, because I was so much puzzled, as you may remember, when I saw the dry cotton-stalks during the last of February, when I went to the exposition at New Orleans.

A SEVERE STINGING.

My pa keeps bees. The very first swarm came out on the 4th of June, 1887, and pa was not at home. As ma went to hive them they flew on her like a set of yellow-jackets, and stung her all over her head and hands. They would not leave her until we dashed a couple of pails of water over her. It made her so sick that we thought she would die, and we sent for the neighbors. It acted just like a rattlesnake bite. We could not get any thing to help her until she drank sweet cream. We sent for the doctor. He gave her some aqua ammonia to put on where she was stung, and some powders to take. He said she would not have lived until he got here if it were not for the sweet cream she drank. GEORGIANA HOKE, age 11.

Elkhart, Ind.

My young friend, I am sorry to tell you that the matter of remedies for bee-stings is involved in a great deal of uncertainty. May be the sweet cream your mother drank did her some good, and, on the other hand, who can say she would not have recovered without any thing, just the same? Very likely the cold water thrown on her had the effect of allaying the fever, and perhaps reviving her. We have tested every remedy for bee-stings that has come up, until we are well satisfied they have no effect whatever. This refers to single stings. Where a person is stung a great many times, as in the case above, throwing on cold water or wet sheets may help the patient in the way I have indicated.

A WHOLE FAMILY OF BEE-KEEPERS.

Dear sir 1 tke pen in hand to let you now that papa has bees and my brother has bees and granpapa has bees and uncle will has bees and uncle Eaber has bees and Isaac W has bees and uncle Anson has bees aud pierce has bees and Hariet Smith has bees and I believe I Will Close for this time from the hands of ARTMECHIA FLUHARTY.

Well, well, my young friend, I am glad that you have so large a family of bee-keepers. We have inserted your letter entire, just as you wrote it. Perhaps after seeing it in print you can see where you might have shortened it some. You begin by saying, "I take pen in hand to let you now," etc. As your letter was written with ink, we presume it was, of course, written with a pen, so you see it does not give us any information by telling us about it at the start. Further on, you say that "papa has bees, and my brother has bees," and so on throughout the letter. "Has bees and" might have been used only once. You did not tell us where you live, and so we could not send you any little book. Now, my little friend, I do not want to complain; we simply want to point out these things, that you and lots of the other little folks may be more careful. By the way, you addressed the letter "Medney, O.," in consequence of which it took a good while for it to reach us.

THE BLUEBERRY.

Mr. Root:—Please tell us something about blueberry-plants. Are they grown for any thing in particular? Are the ones that grow on the mountains the same? Is there much sale for them? How much are they worth per 1000? A JUVENILE.

Friend Juvenile, I am sorry to tell you that most if not all of the attempts at growing the blueberry under cultivation have failed. A man by the name of Staples has been for years swindling people by pretending he had plants that would grow under cultivation. After receiving the money he simply sent dry sticks; and after he was published he started out under another name; but our agricultural papers have so thoroughly ventilated him I guess his business is pretty well done up. I believe the general decision is, that the blueberry behaves obstinately under cultivation; at least it does in most soils. If somebody can tell us where there is half an acre or more under cultivation, and bearing good crops of berries, I should like to know it.

THE BEE.

The little busy bee,
  It carries loads so large;
It never once complains,
  And never makes a charge.

The little bee, it is so clever!
  It works from dawn till dark;
They always choose good weather,
  And know just when to start.

It gathers honey all the day,
  Although the sun beats hot;
It stores away its honey,
  And then awaits its lot.

And this, I'm sad to say,
  Is very bad indeed;
For there is some one watching
  To do some cruel deed.

The apiarian waits
  Till they have filled their combs,
Then he gets the extractor out,
  And desolates their homes.

Then why should not we
  Take a lesson from the bee?
Improve the time which God has given,
  Precious to you and me?

Paw Paw, W. Va. CLARA STREBY.

Thank you, friend Clara. If you wrote these lines, and I guess you did, you have done very well indeed — rather better, I think, than the average poetry that is sent in. We have to be a little careful about accepting poetry from little folks, sometimes, because there are so many nice little poems on the bee in books, and it is a very easy matter to copy them off. I do not mean to say the little folks are dishonest, for they do not realize, sometimes, I think, what they are doing.

OUR HOMES.

Blessed are the pure in heart, for they shall see God.—MATT. 5: 8.

IN our last talk I promised to consider the letter from friend Lighty; before I got around to it, however, I found the following letter on my table, written by our stenographer and proof-reader. It is in a little different line from what I had proposed to talk in; but inasmuch as it gives some very important facts that are new to me, I have thought best to give it:

MR. L. W. LIGHTY—*Dear Sir and Friend:—*

In last GLEANINGS there appears a letter from you, in reply to which please permit me to ask you a few questions, for I fear I do not understand you. You say, "Our jails are filled with Christians." On which side of the jail walls were they *first* known to be Christians? How many of them can produce a record from a church, proving them to have been always known as active and influential in religious work? How many of them taught in Sunday-school? How many years? Would not every one of the 300,000 prisoners in the U. S. have said amen to your defense of Ingersollism just *before* the commission of the crime? Is there no difference between a man who *professes* Christ, in order to gain confidence, and a man who *puts on* Christ as the highest type of humanity? What teaching of Christ is contrary to the law of our land? If a law be passed in Pennsylvania, plainly contrary to Christianity, would it not be declared unconstitutional? Is not the gospel of Christ the common law of Pennsylvania? Do not hypocrites always espouse the *best* cause? Did you ever know of a man to *pretend* to believe in Ingersoll, in order to deceive people? Did not Christ himself make a distinction between the sheep and goats?

Infidels always speak of Ingersoll's family as being an "honor," etc. Why not take a fresh case? I know infidels here, and they are very nice folks. They *like* infidelity, but yet conform to the ordinary requirements of civilized life, and so the mere matter of creed is not thought of.

Washington says there can be no permanent government without morality, and he says he has no confidence in that morality which is not based on religion. Not one of our presidents was on your side of this question. True, some were not what I call orthodox; but Washington, Adams, Lincoln, Grant, Arthur, and Garfield were, and Hayes and Cleveland are, I think, governed by Christ's gospel. The names of great men who have blessed the world and the church would fill volumes, as you well know. Men may claim that they owe nothing to the sun in point of health; but as long as they can not get away from it, I must regard their claim as mere rant. Men who have aways lived amid Christian surroundings may make sport of the blood of their would-be Redeemer, but they owe to him the blessings of civilization for all that.

Outside of Christendom, a hospital was never erected, nor an asylum for the insane, deaf, dumb, idiotic, etc. Turkey knows nothing of them, except as borrowed. By the way, what is the general condition of woman in non-Christian countries?

Friend Lighty, did you ever know of a religious paper to be on file in a saloon? Doesn't the *Police Gazette*, and papers of that kind (all opposed to Christianity) always lie (in two senses) in plain sight in these ante-rooms of death? What was the effect of the gospel on the "Wickedest Man in New York" and his class in 1868? The gospel went through those dance-houses like fire; the buildings were torn down, and fine iron blocks were erected in their stead. I heard some of those sermons from W. H. Boole; I saw those dreadful women bow to Christ; I saw the old buildings come down, and I saw the new ones go up — and all in *spite* of the opposers of the gospel. Offset this, if you can, by showing me where a *perfect* Christian society has been infinitely improved by the introduction of Ingersoll's blasphemous sophistry and deceptive arguments.

"Who but *Christians* swing on the gallows?" Much obliged for calling our attention to the fact that crime and infidelity cause a man to call on an insulted Savior when he can no longer live in sin. Yes, a hemp rope has a wonderful effect in causing men to do what they have long neglected to do. I know that untold numbers of Christians have suffered death at the hands of the pope and other tyrants; but I have never heard that any of them, when burning, renounced Christ and called on the Ingersollism of their day for help.

On whom will *you* call, brother Lighty, when you feel your feet slipping over the brink? "If the righteous scarcely be saved, where shall the sinner and the ungodly appear?" Your friend,

GLEANINGS Office, May, 1888. W. P. ROOT.

Friend Lighty was moved to write as he did, I believe, because I said I hoped the man Mrs. Chaddock told us of, who was so unkind to his wife, was not a professing Christian. At the time, I did not think of casting any reflections on anybody, nor any class of people. The reason why I hoped he was not a professing Christian was, because I should be sorry to know that anybody, behaving as he did, should dishonor Christ Jesus by professing to be his follower. Then follows the assertion, that our prisons and penitentiaries are *filled* with Christians. Friend Lighty, did you not forget that I have for years been visiting the inmates of our county jail? and I presume the men I meet there will average very fairly with the inmates of our jails and prisons, the United States over. It is true, I have met some in jail who *called* themselves Christians; but not one, I am sure, who was a member of any church in regular standing at the time of his arrest. One brother said he was a member of the church of England. Some questioning, however, revealed the fact that he had never united with any church. He was baptized when an infant, and never had any conviction nor conversion. When the character of Christ was presented to him fairly and plainly, he rejected the teachings of Jesus at once. Another man who was in jail for selling intoxicating liquors was called by his comrades a "new convert." He had been a new convert only two years before; but, contrary to his wife's wishes, and the wishes of his friends and of his church, he rented a hotel with a bar in it. When I suggested to him that he must have abandoned his Savior before he took to selling liquors, he frankly admitted that such was the case. And so it has been all the way through. Christ goes out of the human heart about the time, or a little before, Satan comes in. Is it not so, friend Lighty? Light and darkness can not well exist at once in the same place. "Ye can not serve God and mammon," Jesus himself has told us. Ninety-five per cent of all who have been imprisoned in our county jail have got there, either directly or indirectly, through intoxicating drinks. Now, when a professor of religion decides to drink intoxicants because he has a craving for them, his religion goes out of his heart as the forbidden beverage goes down his throat. I do not know but that some religious denominations hold the doctrine that a man who is once thoroughly converted is never lost. *I* think he is lost just as soon as he decides to let the appetite for drink, or, if you choose, appetite for sin of any kind, take rule instead of Christ Jesus. More of this further on.

Some years ago I told you of a couple of young men who, while in our county jail, accepted Christ. One of them united with one of our Medina churches afterward. His love of drink, however, drew him into a saloon, and the saloon-keeper chuckled over the idea of helping him to break his pledge and dishonor his Savior. Some time afterward this same *saloon-keeper* was brought into the jail, and I became acquainted with him. He objected to my reading the Bible to him. He finally jumped up and said he could not sit still and hear me read such foolishness as, "Love your enemies;" "Do good to those who hate you," etc. Finally he said:

"Mr. Root, if I listen to you while you read *your* book, will you afterward listen to me while I read some passages from *mine?*"

I consented. Now, brother Lighty, what *book* do you suppose he brought forward to read to me? Why, it was the *Police Gazette*, of course. When we put saloon-keepers in jail, their friends always bring the *Police Gazette* to console their lonely hours. The passages that he selected for my particular benefit were accounts of different ministers who had fallen from grace and broken the seventh commandment, as you say. The *Police Gazette* gave their pictures, and rejoiced over the opportunity with words, as nearly as I can recollect, something like this:

"*Here is another one of your pretty Ministers.*"

This was a head-line. Then they went on to give the details. Why does the *Police Gazette* hunt up cases of this kind, and take such great pains to make the most of them? Why are they so hostile and bitter toward ministers of the gospel? Is it because they love the little text at the head of this talk? Is the *Police Gazette* a friend of purity at all? Friend L., it is not possible that you wish to stand or be placed in company with saloon-keepers, or even with the readers of the *Police Gazette.* Why do saloon-keepers at large dread and hate Christians? Because Christians and Christian ministers are their greatest foes—that is, they are foes to their business. The saloon-keepers and *Police Gazette* folks are all opposed to purity, while our ministers, our churches, and our Sunday-schools are recognized as a class who are *hungering and thirsting* after righteousness.

The greatest objection that has been raised against Christianity is, that it only makes hypocrites. There may be a degree of consistency in saying that Christians claim too much, or promise too much. They publicly declare their purpose in life is to be pure in heart and honest in deed. After having assumed such a responsibility, and made such a public profession, I agree with you that they ought to be very careful. If they do not live up to what they profess, it is a sad, sad reflection, not only on the Christian religion, but on humanity at large. Are we as a class, no matter what denomination we belong to, nor what we profess, frauds and swindlers? Is there no honor in your fellow-man? God forbid that any human being should ever arrive at such a conclusion!

You say that our ministers, as a class, break the seventh commandment oftener than any other class of people. Surely, friend Lighty, you were thoughtless when you made this statement. Every individual who reads these words can mentally go over the Christian ministers of his acquaintance. Now, friends, will you please do this? Do it in a spirit of fairness and not of argument. Is brother Lighty's statement true? I am personally acquainted with, say, one hundred ministers of the gospel. When introduced to any one of them, the very ring of the word "reverend" says to me that the man before me is one set apart by God and by his fellow-men for the most sacred duties that fall to the lot of humanity. I reverence and respect him at once. I look for fairness and honesty, and purity of heart, when I gaze in his face. I can not remember that I have been mistaken. I have told you before in these pages that our book-keepers have standing instructions to send to any minister of the gospel any goods he asks for, without any further reference or inquiry. We simply want to know that he is pastor over a congregation of people somewhere. We do not ask for nor care any thing about what denomination he belongs to. Well, I hardly need tell you that the *black and white* record on our ledgers tells that these men always pay their debts. If they die, their wives and children, or the community, pays the debt for them. It is true, that men have styled themselves "Reverend" for the purpose of getting credit, just as those who get into jail declare they are *church-members* for the purpose of getting out *quicker*. But a very little inquiry will bring out the truth in their case. Even in Isaiah's day, 750 years before Christ, he speaks of some doubtful characters who desired to catch hold of the garments of the *church*, "to take away our reproach."

I have never been personally acquainted with a minister who was even *accused* of breaking the seventh commandment. I am forced to conclude, however, that there are such, because I read of them in the dailies as you do. I presume the cases mentioned in the *Police Gazette* are bona-fide, as a rule.

How can such a thing be? I agree with you, friend L., it is awful to think of or contemplate the fact that even a single minister in the United States, who stands before his people on the Sabbath day, and preaches Christ's word, should be guilty of this horrible sin which I have recently alluded to as being next door to murder. In Pilgrim's Progress we are told that Christian found there was an exit, or short cut, from the very gates of heaven to the portals of hell; and I think that many of us have found it true in real life. Woe betide the man who thinks he has risen in the Christian graces until he is so near God's throne there is no danger. Satan has peculiar strongholds and intrenchments that we may not discover, even in years. I am forced to believe that he sometimes trips the unwary, and takes them down to perdition when they scarcely suspect such a thing were among the possibilities. These are terrible truths and terrible things to contemplate. But woe betide us if we rush to the conclusion that a man may be lost, no matter how hard he *tries* to be *pure in heart*.

There hath no temptation taken you but such as is common to man; but God who is faithful, will not suffer you to be tempted above that ye are able, but will with the temptation also make a way to escape, that ye may be able bear it.—I. COR. 10: 13.

This is true. I suspect many are lost by foolish dallying with sin. We have all heard stories about being charmed by snakes. I hope it is all a piece of superstition; but we will not go into that now. We are told that the charmed person is lost if he even stops to gaze on the wondrous and strange things that begin to unfold before him. My friend, if you have not already, you will some time or other be tempted to stand for a while on the brink of danger, just to see how Satan manages his machinery. It is wonderfully interesting, I know from experience.

There is a way which *seemeth* right unto a man; but the end thereof are the ways of death.—PROV. 14 : 12.

I have often talked to you about the *gradual* way in which crime commences. No man who has been leading a good pure life for months and years suddenly commits crime; that is, not unless he becomes insane through disease, and that we have nothing to do with, for the man is not responsible for it. The point I wish to make is this: Satan takes his victims through a course of training, just as a child is taught at school.

Now, dear friends, before I close this talk to-day I want to speak some plain truths to you.

One of Satan's first lessons toward breaking the seventh commandment is a want of courtesy at home. When a man is cross, short, and disobliging to his wife, but polite and gentlemanly to well-dressed women when he is away from home, he is taking one of Satan's first lessons. This man of whom Mrs. Chaddock told us, who was harsh and brutal to his wife and children, but a talented speaker at farmers' institutes and other public places, was in the first lessons. He may not have got into Satan's toils in that direction, but he had certainly bidden good-by to Christ Jesus; and if he made any profession of being a Christian at that time he was a hypocrite. I once heard of a minister who began complaining about his wife. A brother-minister, who was riding with him in the buggy, called on him to stop his horse. Said he, "If you are going to complain of your wife, I shall have to get out and go on foot." Perhaps this was a rather harsh way of putting it; but the minister of the gospel, who would complain of his wife to a stranger, or, I might almost say, to anybody, has, to a certain extent, let loose his hold on Jesus, and taken up with Satan. Ministers have sometimes been accused of indiscretion, and excused by saying it was natural, and their way, to be very friendly with certain members of their congregation. Any one who has taught school has discovered, sooner or later, that the school-teacher or school-ma'am must not let go of their dignity. I think that ministers, of all other people on the face of the earth, should remember the sacredness and the *dignified* nature of their calling. They should "shun even the appearance of evil." To explain just what I mean, I will relate a little incident of my life.

You know I conducted a Sabbath-school in a neighboring town for a good many years. Before I had a horse of my own, I used to go on foot five miles to this school, and five miles back again. A good many suggested that it was too hard for me—that I had no business in using up my strength in that way. It was not hard, however, for God gave me all the strength I needed for such work; and I believe that just such a walk of ten miles every Sunday afternoon would do me good now. Well, one Sabbath afternoon at the close of the school, just as I started on my homeward walk, a young lady who had been for a few Sundays assisting as one of the teachers, drove up behind me with her horse and buggy. She spoke something like this:

"Why, Mr. Root, do you go all the way to Medina on foot?"

I told her that I often did so, and that I rather enjoyed it. She replied:

"Well, it is too bad. If you will accept a seat in my buggy I can take you a whole mile on your way; and—" she hesitated, but finally resumed, "I am sure it would be nothing out of the way, would it?"

Readers, I leave you to answer the question. This young lady was of excellent parentage, and was, in truth, distantly related to me by marriage, and a most sincere, earnest Christian. I accepted her kind invitation, and during the ride we spoke of the interests of the school, and of Christ's work in that vicinity; but, to tell the truth, some way I did not feel quite as well satisfied as had I taken my usual walk across the fields and through the woods. In thinking the matter over it became plain to me why my conscience did not quite approve. This Abbeyville Sunday-school had been the means of doing a great deal of good. It was composed of pupils of different denominations, and a good many of them could not speak English very well. It was generally known that I did the work from a simple love to my fellow-man, and love to Christ. People gave me the credit of being an honest Christian, pure in heart, just as friend Lighty has done at the opening of his letter. Of course, I was watched narrowly, as every Christian is and *ought* to be. When people saw me going home alone 'cross lots, and through the woods, their opinion of me and my work would be slightly different from what it might be if I came in a fine carriage; and it occurred to me that some who were watching might have said:

"Oh! it is not so very strange, after all, that Mr. Root is so much taken up with Sunday-school work. Who would not like to ride out Sunday-afternoon in a nice carriage, with a good-looking girl for company, even if she did happen to be a Sunday-school teacher?" The Bible says, "Shun every appearance of evil." I had taken upon myself the sacred and solemn calling of a *spiritual* teacher. My relation to the little neighborhood round about Abbeyville was much like that of a pastor to his flock. I stood on holy ground: and I tell you, friends, it behooves such a one to be not only holy in action, but pure in heart, and to shun even the appearance of evil. Nobody ever talked about me, that I know of; in fact, I have never found people ready to talk about me in that way, even if they had excellent reason for so doing; and I do not believe that any minister is very often in danger of being talked about in this way, if he fully recognizes what his high and sacred calling demands. Go on foot five miles —yes, or more than five miles, rather than give the world any *faint* excuse for starting scandal.

Christians and unbelievers often get a good deal stirred up in discussing these very matters touched upon by friend Lighty. Yes, they sometimes get almost into a fighting mood. Well, I want to say in conclusion that I think it is an excellent thing to get into a fighting mood; but for God's sake, dear friends, don't fight each other. Fight the inborn sin in your own hearts. Resolve with all your might, strength, mind, and soul, that you will show your opponent by the way you live, and by the stamping-out of every suggestion of Satan before it can even take root, that you intend to be pure in heart according to the language of our text. If you do this, criticism and unkind flings at you will not hurt you, but do you good; and if you live so near to Christ that abusive words only drive you to him, and make you fight against sinful suggestions in your own heart the harder, then can you be glad of criticism. You can rejoice when you have been wrongfully accused and misrepresented. No doubt some of you will think these are pretty strong statements; and I have seen professing Christians stare at me in amazement when I suggested to them that they ought to be thankful because people did talk about them. Why, dear friends, we are getting right on to the ground where that wonderful text comes in—the Savior's own words, when he said, "Rejoice, and be exceeding glad." Do you remember when it was that you were to rejoice and be exceeding glad? Why, "When men shall revile you, and persecute you, and say all manner of evil against you falsely for my sake." Therefore all we who call ourselves Christians need not be troubled, even if friend Lighty and a good many others who reject Christianity do say that our jails are filled with Christians, and ask, "Who but Christians swing upon the gallows?" etc. What shall we do? do you ask? Why, stick closer to the Master; fight harder for absolute purity, not only in appearance, but strive to be pure in heart; and we shall not only conquer in argument, but, when the last great day comes, the promise of the closing words of the text is yours—"*For—they—shall—see—God.*"

REPORTS ENCOURAGING.

WINTERED WITHOUT LOSS.

OUR report for 1887 is as follows: We took out of the cellar 9 swarms, April 20 (which was all we put in in the fall). We increased to 25, and got about 432 lbs. of comb honey—an average of 48 lbs. per colony, spring count. We have wintered the whole without loss so far.

SHERMAN STANCLIFF, JR.

Malone, N. Y., April 27, 1888.

Horsemint is in abundance; and if the weather is right when in bloom, we shall have a good season.

Sweethome, Tex., April 2, 1888. AD. MEYER.

To-day is the first day I saw the bees carry natural pollen, as it has been fine weather for some time, and some flowers are in bloom. G. HEESCH.

Milwaukee, Wis., April 28, 1888.

Yesterday and to-day is the first that bees gathered pollen. About two weeks ago I noticed a few bees carrying a little pollen; but ever since, until yesterday, it was too cold for bees to fly. I never had as good success in wintering in chaff hives.

Clarion, Pa., April 27, 1888. J. T. FLETCHER.

My 35 stands of bees, all but 5, have wintered well on their summer stands, packed in forest leaves, all strong and healthy. They are gathering pollen. Our spring is so far very dry—only one rain so far in April. I will try to give you reports from this locality. W. H. HORSLEY.

Oxford, Johnson Co., Iowa, April 19, 1888.

WINTERED WELL.

Our bees wintered well in the Uncompagre Valley. I think 10 per cent will cover all losses. Nearly all are wintered on summer stands. I saw the first drone fly April 22. Bees are very busy now on our numerous wild flowers. The buck-brush and squaw-brush are among the first flowers. The latter resembles the willow in appearance, and bears a red berry the size of a small pea. It is the only kind of wild fruit we have in this valley. I planted some alsike clover last year, June 1st, and it nearly all winter-killed. Honey is worth from 20 to 30 cents.

Brown, Col., April 28, 1888. E. E. HAMMOND.

OUR OWN APIARY.

CONDUCTED BY ERNEST R. ROOT.

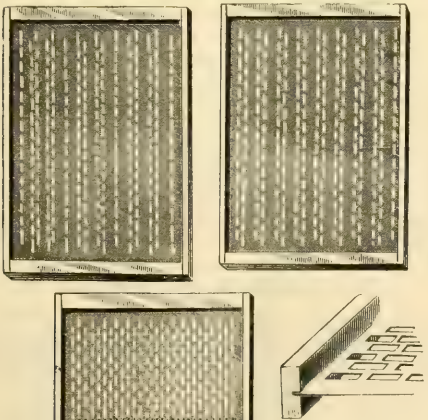
NO FOUL BROOD, AND LOTS OF HONEY.

THE boys are still keeping close watch of the bees. Our apiaries have been thoroughly examined, and still no foul brood, although there are great quantities of brood in every hive, in all stages.

We have been having splendid weather for bees during the last two weeks. Pollen came in quite profusely from the maples, and honey from fruit-bloom to such an extent as to crowd the queens, and cause burr-combs to be built in some cases on top of the frames. I have been testing recently the honey from different hives. I do it this way: I punch my finger into the combs here and there; and, like a child who has suddenly discovered some molasses, I plunge the daubed finger into my mouth. I could detect distinctly the apple-bloom, and the flavor to me was very pleasant, even though unripe. It was so thin and watery that when the combs were tipped horizontally it would run out. In other combs I could detect the pungent flavor of peach-blossom, something as we find in the meat of the peach-stone. At this time of the year, I do not think that I ever saw more honey in the hives.

SHEET-ZINC WOOD-BOUND HONEY-BOARDS.

As promised elsewhere in this issue, in our answer to Mr. Heddon, I herewith give engravings of the honey-boards in question.



BREAK-JOINT SHEET-ZINC HONEY-BOARDS.

You will observe that they are simply a sheet of zinc, ⅛ inch smaller all around than the inside dimensions of the Simplicity hive. The lower engraving on the right hand shows how the zinc is slid into the saw-kerfs made in each of the side and end pieces. These pieces are nailed together at the corners with 2 1¼-in. nails. To further strengthen them, a ⅝ wire nail is so driven into the side pieces as to pass through the edge of the zinc in the saw-kerf. Three of these nails are driven into each side—two at each corner and one in the middle. The latter adds very materially to the stiffness of the honey-board through the middle, while the other two will of necessity hold the side pieces securely to the end pieces. I omitted to remark, in passing, that the 1¼-inch wire nails which are driven through the ends of the side pieces into the end strips should be so driven that their points will be nearer together than their heads when imbedded in the wood. We find when the honey-board is so constructed it is very rigid indeed—much stronger than any other honey-board in use; in fact, you can not possibly rack them by pulling the opposite corners toward each other. Two of the honey-boards, you will observe, have no transverse stiffening. In the break-joint boards the blank zinc between the perforations renders such stiffening unnecessary. The lower honey-board, with the ordinary perforated zinc, requires a stiffener. This consists of a V-shaped strip of wood in length equal to the width of the honey-board between the sides. This strip is held in position by a wire nail passing through the side into the ends. Some do not regard the break-joint feature as of any importance, and hence will prefer a larger number of perforations, in order that the bees may the more readily pass from the brood-nest to the surplus apartment. Whether there is any thing in this, I am not prepared to say from experience; but I should not suppose it would make any very great difference.

MAKING A SHEET-ZINC HONEY-BOARD BREAK-JOINT.

The uppermost cut on the right shows a break-joint honey-board adapted to the spacing of frames 1½ inches from center to center. A great many apiarists use nine frames in ten-frame Simplicity hives; and nine frames will make a spacing of 1½ inches from center to center. Others, again, and perhaps a majority, will prefer to space the frames 1⅜ inches from center to center; this is the spacing allowed for in a ten-frame Simplicity hive. The uppermost honey-board on the left is spaced with that idea in view. You will observe that, instead of a double row of holes, and then a space, and so on continuously, as in the other honey-board, that there are first a single row of holes, a space, two sets of double rows of holes, a space, and a single row, and so on throughout. You may wonder somewhat at this; but the cutting of our die originally necessitated it. We found we could not alternate a single row of holes, or even a double row of holes, with blanks between, so as to break joint, with frames placed below 1⅜ inches from center to center.

PRACTICAL WORKINGS OF THE HONEY-BOARD.

That such honey-boards will work, and give entire satisfaction, we demonstrated last summer in the Hyde apiary, to our full satisfaction. A plain sheet of zinc will not do unless quarter-inch strips are put above and below it. We knew it wouldn't, but we thought we would try it, and we had just such results as you might expect, in the absence of a bee-space. A plain sheet of zinc without projecting rim did nothing more than to exclude queens. Bridge-combs were built through zinc, up against the sections. It costs but a trifle more to have an additional rim to provide the bee-spaces, and I certainly would not advise anybody to fuss with plain sheets of zinc, unless he thinks he can afford to bother with little strips of wood ¼ inch thick, to bring about the proper bee-spacing. For prices of these wood bound honey-boards, see Special Notices elsewhere in this issue.

THAT NEW AUTOMATIC ZINC MACHINE has proven to be a grand success. It punches 70 holes at one punch, or 8750 holes in a whole sheet 28x96 inches, every 10 minutes. We find that the perforations (the zinc cut out) will pay for the man's time attending the machine. The price, therefore, of our perforated zinc is very nearly that at which the unperforated sheet zinc can be bought for. As to the quality of the work, we will let samples, which will be sent on application, speak for themselves. See Special Notices.

WINTERING BEES.

SEVERE LOSSES IN WINTERING AT THE MICHIGAN AGRICULTURAL COLLEGE FARM.

It comes a little severe, after nine years of perfect success in wintering, to have to report severe loss. We put nearly 50 colonies of bees into the new bee-house cellar last fall. I supposed there was no doubt about the temperature. Each colony had from 12 to 15 lbs. of honey—the amount we have given late years—and all were in fine condition. As before reported, the temperature went as low as 28°, and remained there for weeks. I was uneasy; but as several had reported low temperature not only safe but even desirable, I took no pains to effect a change. Well, the effect is as given above. More, several colonies that died apparently starved, as all the honey was gone.

I am now confirmed in what I have believed and taught for years: A cellar should preserve a temperature varying within 38° F. and 48° F., and should not be subject to abrupt changes of temperature. I have not a doubt but that, in my old cellar, or if my new cellar had done what was expected of it, all our bees would now be alive.

Again, I usually feed rather light in fall so as to feed warm thin syrup in spring. This won't do in a cold cellar. In my old cellar the bees would have had enough. The severe and long-continued cold made their supplies too meager. As I have often said, so I now repeat with emphasis: The temperature of a cellar must be under our control, else there will be quiet disturbed in winter, and a very disturbing quiet in spring. A. J. COOK.

Agricultural College, Mich.

I am very sorry indeed, friend Cook, to hear of that disturbing quiet alluded to in that closing sentence. Although we have not had it at the Home of the Honey-bees of late years, I well remember the feeling it gives one when he experiences it. I suppose it would not be worth while to suggest chaff hives as we use them.

GLEANINGS IN BEE CULTURE.

Published Semi-Monthly.

A. I. ROOT,
EDITOR AND PUBLISHER,
MEDINA, OHIO.

TERMS: $1.00 PER YEAR, POSTPAID.

For Clubbing Rates, See First Page of Reading Matter.

MEDINA, MAY 15, 1888.

Blessed is the man that endureth temptation; for when he is tried he shall receive the crown of life which the Lord hath promised to them that love him.—JAMES 1:12.

No more back numbers wanted for April, 1884.

OPEN-SIDE SECTIONS.

We learn from the *Review* that Mr. J. H. Robertson has used 1000 open-side sections, and is thoroughly disgusted with them. He says the bees often connect their combs through the side openings. How is this, friend Foster, in your locality? We should like to hear from others, both for and against this kind of sections.

NO FOUL BROOD UP TO MAY 15.

At this date, not a trace of foul brood has been discovered anywhere in our apiaries; but I tell you, there is brood, though, good and healthy brood, "with a vengeance." As we do not dare to ship bees, however—that is, not just yet—there is a prospect of something big in the way of comb honey at the Home of the Honey-bees.

APICULTURAL STATISTICS IN THIS ISSUE.

You will observe elsewhere that the different States are more fully represented than in our former report. In the present one we have endeavored to give each honey-producing State its proportionate number of reporters according to its importance. We have now in the field 170 reporters. We have heard from 133 of this number. The rest of them have either forgotten to make their report, or else for various reasons are unable to serve in the position appointed them. We extend our thanks to them all.

THE GRAND RAPIDS LETTUCE.

Just as we go to press, the following is at hand:

> We can beat the record published in GLEANINGS on the Grand Rapids lettuce. I got two packages of seed from you for 10 cents; raised 202 plants in a space 12 ft. long by 5 ft. wide, and they were sold for 5 cts. a head, making $10.10. I will give particulars if you wish. ROSS KNIGHT.
>
> Westfield, N. Y., May 7, 1888.

By all means give us full particulars, friend K. We should be very glad indeed to get reports from any who have tried the Grand Rapids lettuce. Was my impression in regard to it, when I saw the greenhouse full of it at Grand Rapids, a mistake? More than a thousand of the readers of GLEANINGS have had samples of the seed.

APICULTURAL STATISTICS.

Friend Hutchinson, in his very excellent *Review* of April 10, says:

> Mr. Root has inaugurated in GLEANINGS a system of gathering information in regard to bee-keeping that promises to be of the most value of any thing yet attempted in this line.

After giving our plan of securing the statistics, friend Hutchinson says he has long contemplated something of the kind; but his idea was to have a reporter in each county in the important honey-producing States. We thought of this in the first place, but the undertaking was too great for us to attempt, before gaining some experience on a smaller scale. If our present method shall prove successful, which we think it has done, we may yet get reports from every county; but it would hardly pay to do this more than once in a year, while with our present plan we can make reports that will be valuable to bee-keepers three or four times a year.

PROPOLIS AND CLOSED-END FRAMES.

FRIEND W. Z. Hutchinson, of the *Bee-Keepers' Review*, reminds "Brother Root" of the time when he was so slow to admit that the bottoms of the sections might with safety be exposed to bees in the way the very popular T super is arranged. To which I own up and confess, that I am now better posted than I was a year or two ago. Many thanks to brothers Heddon and Hutchinson for so patiently explaining to me the very great advantage of using a honey-board in this very matter of propolis; and I will frankly agree to own up in the same way when we succeed with closed-end frames inside of close-fitting hives.

DEATH OF WILLIAM OLDROYD.

THE following is just at hand as we go to press:

> My father (Wm. Oldroyd) was buried April 24, at Mt. Vernon, Ohio. He went south for his health, but could not regain it. He often spoke of you with great regard, and I thought I would drop you word of our great loss. O. H. OLDROYD.
> Springfield, Ill., May 5, 1888.

Our older readers will remember friend O. as the man who furnished ink to the readers of GLEANINGS, and whose letters appeared in the Home Papers (see January issue, 1880). He was familiarly known in GLEANINGS as "W. O." All doubts and uncertainties are now for ever ended with friend W. O. His anxieties and conflicts are ended. Even though we have no full particulars in regard to his last moments, we can rest assured that he was welcomed into the other land with the words, "Well done, good and faithful servant."

LET HIM THAT THINKETH HE STANDETH TAKE HEED LEST HE FALL.

AFTER the words were printed on page 405, wherein I tried to tell of the dangers that beset even the best of us if we are not constantly on the watch for Satan, I came across the following in the *Sunday-School Times*, written by Alexander McLaren, D. D.:

> Every man is a mystery to himself; and he who has learned himself best, will be the readiest to acknowledge that the material for any sin is stored within, and may be set ablaze by some flash from hell. Vesuvius was quiet for centuries, and trees grew and cattle fed in the crater. Who knows what combustibles lie inert in the caves of his own heart?

I suppose this is true of every human being: I *know* it is true of A. I. Root, but A. I. Root never knew it until he started out to be a Christian. And this is one glorious part of Christ's service—it helps us to see how bad we are, and keeps us busy at home, *watching* and *weeding*.

THE BRITISH BEE-KEEPER'S GUIDE-BOOK.

THE work bearing the title above is by Thomas Wm. Cowan, F. G. S., F. R. M. S. It is paper bound, and contains 175 pages. It has now reached its ninth edition and seventeenth thousand. It has been frequently revised, and has been translated into French, Danish, Swedish, Russian, and Spanish, and we understand that arrangements are now being made to publish it in several other European languages. This work, doubtless, has had the largest sale of any bee-book in Europe. Its author, Mr. Cowan, has kept steadily in view throughout the whole work, "*multum in parvo*," in its most literal sense. The larger portion of the present edition has been re-written. It seems to be specially adapted for the cottager, and, in fact, for beginners the world over. In this respect it is quite similar in purport to our A B C of Bee Culture, which has likewise had a large sale—32,000. Mr. Cowan has not lost sight of the very important fact that a book to be popular should be placed at a low price, and be written in the purest and simplest of English. Price 1s. 6d., or 36 cts. in our money. It can be obtained of the publishers, Houlston & Sons, Pater Noster Square, London, Eng.

POTATOES KNEE-HIGH MAY 10.

THAT is the way ours are, neighbors; how are yours? Yes, we started them in the greenhouse, and then put squash-boxes over them. A few days ago the tops of many of them were pushing so hard against the glass that we stripped off the boxes. The glass was never moved, nor slid back at all. During the month of April the heat is none too great, leaving the glass right in place. These same boxes have done duty, first over potatoes, then tomatoes, and, lastly, on the squashes; and they will come in play still another time, to keep the bugs off.

P. S.—Since the above was written, we have had a pretty severe frost. It came on the night of the 13th. It was toward Sunday night that the thermometer indicated danger; i. e., it indicated 45° at sundown. Whenever the thermometer says 50 or lower at sundown, and the sky is clear, you had better cover up your plants. Well, notwithstanding it was Sunday night, Caddie and Huber and Ernest and John helped put the panes of glass back into their places on the squash-boxes. We waited till nearly dark before we went about it, and altogether it took us only 20 or 25 minutes. We did not take the time to slide the glass into the grooves, but simply laid them on top of the boxes. This morning every tomato-plant that did not have a box over it was wilted as if it had been in boiling water. Those that had only mosquito-netting in place of the glass were scorched on top; but where the glass was laid over the box loosely, not a plant was injured. Now, friends, was it right and proper to spend half an hour in covering plants on Sunday night, after sundown, when it will save you a great many dollars? I confess I did not feel as happy about it, and as perfectly sure that it is just the thing to do, considering the influence of the act on others, and all these things; and yet, on the other hand, we should be getting over to that side where we obey the letter rather than the spirit, if we should let all our plants freeze when nothing was needed except to lay the lights of glass on top of the boxes. We could not well have done it Saturday night, because the sun would very likely be too hot for them during Sunday. But I can say this: I felt happy this Monday morning in thanking God for having placed within my reach, such efficient means for averting the damage from late frosts.

A MODERN RIP VAN WINKLE.

HAVING occasion to write a series of two or three articles for the *Farm and Fireside*, Springfield, O., on the subject of bees, we spoke of Mr. Langstroth, the inventor of the hive bearing his name, as being now well advanced in years. A subscriber of that paper, seeing this statement, thought best to enlighten us. From his letter we extract the following:

> You speak of L. L. Langstroth as now well advanced in years. That would make out that he is still alive. He has been dead three years. H. D.
> Cleveland, Tenn., April 29, 1888.

That is the first time we ever heard that he has "been dead three years." We feel sure our correspondent is mistaken, for in the present issue of this journal an article appears from Mr. L.'s hand, written not ten days ago. Mr. Langstroth is enjoying quite good health, considering his years and the amount of sickness he has passed through. The same correspondent, in the same letter, informs us that the dimensions which we gave for the Langstroth hive were incorrect. We think he needs to take a bee-journal.

G. M. DOOLITTLE'S METHOD OF REARING QUEENS.

THE above is the title of a little work just published by E. H. Cook, Andover, Ct. It is a very neatly and tastily gotten up little work. It contains 30 pages of valuable reading-matter (no advertisements). Price 15 cents. The book can be had of the publisher. Doolittle's method of raising queens has been scattered through various pages of this journal. Very recently he has re-written the subject for the *Bee Hive;* and now its editor has published it in book form.

Doolittle's method of getting cells is briefly as follows: While he is working among his bees, performing various necessary work, he cuts out all rudimentary queen-cells which he comes across. These are kept by themselves till wanted. When he is ready to raise some cells he takes a batch of unsealed young larvæ, slices the comb down, and with a quill toothpick picks out the little grub and places it in one of the rudimentary cells before mentioned. In other words, he practices the operation of "grafting cells," as it has been called. These grafted cells are then placed in a strong colony previously made queenless and broodless, where they are supplied abundantly with royal jelly, after which they are capped over. They are then cut out, and placed in nuclei where the process of queen-rearing is completed.

In one corner of the cover of the book we notice, "The Nearest Approach to Nature's Way yet Devised;" and yet friend Doolittle gives very completely the method of grafting cells. It rather seems to us that the process of grafting is somewhat of a departure from nature's way; still, for this reason we do not regard it as any less valuable.

Following the subject of queen-rearing are some pungent paragraphs taken from Doolittle's numerous writings in GLEANINGS and elsewhere, entitled, "Golden Nuggets." Following this is the subject of Queens, Scraps, and Honey-combs. These short little paragraphs contain some of the creamiest portion of Mr. D.'s writings, and it is well worth 15 cents to have the whole all nicely bound by themselves, to say nothing of the valuable hints upon queen-rearing.

PUTTING YOUR CLOTHING AWAY DECENTLY AND IN ORDER, WHEN YOU GO TO BED AT NIGHT.

A CORRESPONDENT suggests that, on account of fires that are always liable to occur, if for no other reason, every individual should leave his clothing, on retiring, so he can lay his hand on each article instantly, even in the dark. The suggestion is a good one. I have for years been in the habit of laying my coat across the back of a chair. My vest is laid on it, and, until recently, I laid my pants across the chair. Right at the head of my bed, however, is a little closet containing my clean shirts, collars, stockings, handkerchiefs, etc. By opening the closet door a little, my suspenders will catch over the top, holding my pants so they just clear the carpet. Mrs. Root suggested, as soon as I adopted the plan, it would keep the before-mentioned articles in much nicer shape to hang them up in this way than to lay them across the chair or lay them doubled up in a heap on the floor; and I find it is much more convenient to get into them, on the new plan. My cap goes on top of a bed-post; stockings are turned inside outward, and opened out so as to give them as much air and ventilation as possible when laid across the tops of my boots. When I get all this done, I raise two windows from two or three inches to a couple of feet, so that my clothing may be thoroughly aired all night. The height the windows are raised depends on the weather. If an alarm of fire comes during the night, I can get ready to go out, no matter what the weather is, about as soon as anybody. If a change of clothing is to be made in the morning, the proper ones are always placed where they are wanted, and the others put away where they belong, in the clothes-press, so my wife does not have to pick up my "duds" after me.

GLOSSARY FOR BEE-KEEPERS.

FROM the *British Bee Journal* we learn that our brother editor, Mr. Thomas William Cowan, has just begun "A Bee-Keepers' Vocabulary; or, Glossary of Technical and Scientific Terms and Words used in Works upon Bee-Keeping." So far it has been most ably conducted. The correct derivations are given from the Greek, Latin, and modern languages. As a sample of some of his definitions we give the following:

> AIR-SACS, OR VESICLES. *n.*—These are enlargements of the tracheæ, or air-tubes, and lie in the fore part of the abdomen. They can be filled with air at the will of the insect, and enable it to alter its specific gravity, thus rendering it better able to support itself on the wing with as little muscular effort as possible. They are very large in the worker and drone, but much smaller in the queen, owing to the room occupied by the ovaries.
>
> ALIGHTING-BOARD. *n.* (*A-Sax. lihtan, alihtan,* to descend, alight.)—The projection of the floor-board in front of entrance; that part on which the bees alight before entering the hive.
>
> ALIMENTARY CANAL.—The duct by which the food is conveyed through the body, and the useless parts evacuated. It commences, in the bee, at the mouth, and consists of the œsophagus, honey stomach, chyle stomach, small and large intestines, and ends with the anus.

Mr. Cowan, above all other persons, we believe, is the best fitted to get out a good glossary for bee-keepers. Being a scientist of the highest order, he is able to clothe his definitions in scientific phraseology, and with scientific accuracy. The definition of air-sacs, or vesicles, given above, will prove to be of some interest. We doubt not there are very few among intelligent bee-keepers who know the location of those air-sacs. The definition of the alimentary canal will assist not a little in understanding some of the terms which are constantly coming up.

THE BEE-KEEPERS' REVIEW

for May is now out. Having regained the time lost during his illness, the editor will hereafter take pride in getting out the REVIEW promptly on the 10th of each month. The special topic of the present issue is "Hiving Bees." The review of Mr. Cheshire's work, which was begun in the March No., is finished in the present issue. We have a surplus of the numbers containing this review, and, so long as they last, these three numbers will be sent free to all who apply. Price of the REVIEW, 50 cts. a year.

THE PRODUCTION OF COMB HONEY.

A neat little book of 45 pages; price 25 cts. The REVIEW and this book for 65 cts. Stamps taken, either U. S. or Canadian. Address

W. Z. HUTCHINSON,
613 Wood St. **Flint, Mich.**

CARNIOLAN QUEENS.

Gentlest bees known; not surpassed as workers by even the wicked races. Imported Queens, "A" grade, $8.00. Tested, $4.00. Untested, after June 1, $1.00. Money must accompany orders. Send for Circular. **S. W. MORRISON,**
Oxford, Chester Co., Pa.

FOR SALE CHEAP---19 HIVES

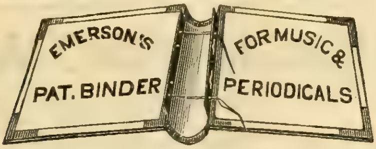
Hybrid Bees in chaff hives, all but two on L. frames. Also 50 empty hives, 40 of them chaff, containing 10 frames each, about half of which are filled with good combs. $125 for the lot.
CHAS. F. RAYMOND, 739 Republic St., Cleveland, O.

THE GOSHEN BEE-SUPPLY CO. is now ready to ship one-piece V-groove sections any size, from $2.00 to $3.50 per M. Send in your orders, and they will be filled promptly. Sample and price list free. **GOSHEN BEE-SUPPLY CO.,**
10d **Goshen, Indiana.**

FOUNDATION! Samples and prices for your address.

FOR SALE. FIRST-CLASS SAW-TABLE, saws, emery wheel, etc. Fully described on application. **H. L. GRAHAM,**
Grandview, Iowa.

I HAVE a fine lot of pure Italians for sale. Tested queens, in May, $2.00; June, $1.50. Warranted queens, in May, $1.00; in June, 75 cts. One-frame nucleus, with tested queen, in May, with 1 lb. of bees, $3.00 each; extra frame, 50 cts. I have sold, this spring, $150 worth of bees and queens.
10-11-12d **C. E. JONES, Ostrander, O.**



You can not look over the back No's of GLEANINGS or any other Periodical with satisfaction, unless they are in some kind of a Binder. Who has not said—"Dear me, what a bother—I *must* have last month's Journal and it is nowhere to be found?" Put each No. in the Emerson Binder as soon as it comes, and you can sit down happy, any time you wish to find anything you may have previously seen, even though it were months ago.

Binders for GLEANINGS (will hold them for one year), gilt lettered, for 60 cts.; by mail, 12 cts. extra. Ten, $5.00; 100, $45.00. Table of prices of Binders for any Periodical, mailed on application. Send in your orders. A. I. ROOT, Medina, Ohio.

The Canadian P. O. authorities refuse to receive these through the mails, as they exceed the proper weight for merchandise.

J. P. MOORE

would say to his friends and patrons that he is again busy rearing queens from his celebrated strain of Italians, which has brought forth unbounded praise.

SEE WHAT THEY SAY.

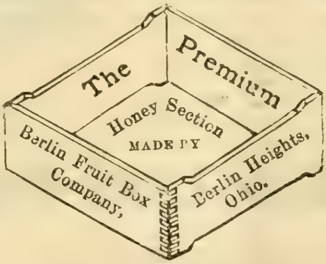
We think they are a little the finest bees we ever saw. . . . I expect to call again next spring, as I think the best I can do is to change all to your strain. N. S. WARNER, Dysart, Iowa.

This certifies that, last year, I bought of J. P. Moore two cols. Italian bees; and this year I found them working on the first crop of red clover in great numbers, just like a swarm.
J. N. RAVENSCRAFT, Morgan, Ky., Jul. 5, 1887.

Send for circular, giving other testimonials and full particulars. Prices: Warranted queens, each, $1.00; 3 for $2.50; 6 for $5.00. Safe arrival and satisfaction always guaranteed. Address
J. P. MOORE, Morgan, Pendleton Co., Ky.

Don't Look at This! Unless

you wish to buy Comb Foundation. If you do, send us your order and get the best quality for 50 cts.; 10-lb. lots, 40 cts. **R. B. MORRIS,**
Rantoul Nursery, Rantoul, Ill.



Our No. 2 one-piece sections beat all in utility for the price—only $2.60 per M. for 4¼x4¼. Our No. 1 take the cake, and only $3.60 per M. Liberal discount on large orders.

Address as in cut.
10-11-12d

FOR SALE CHEAP.

50 of Root's chaff hives, made from selected lumber, well seasoned. Will be sold in the flat at greatly reduced prices. I also have several thousand of those beautiful eight-color chromo cards, which will be sold at very low rates. Address at once,

J. H. MARTIN,
10-11d **Hartford, Wash Co., N. Y.**

FOR SALE.

Eight colonies of pure Italian bees in Simplicity hives. Will sell at $7.00 per colony. Inquire of
10d MARY WATERWIRTH, Salem, Col. Co., O.

ITALIAN QUEENS.

Untested, 75 cts.; tested, $1.25. Untested, per dozen, $8.00. **I. GOOD,**
Sparta, White Co., Tenn.

YES, I AM READY! YES, I AM READY NOW!

to fill all orders for bees and queens by return mail; also all kinds of bee-supplies, at rock-bottom prices. Send for my price list before placing your order.

R. E. SMITH,
Tilbury Center, Kent Co., Ontario, Canada.
10d P. O. Box 72. Formerly Smith & Jackson.

DADANT'S FOUNDATION FACTORY, WHOLESALE AND RETAIL. See advertisement in another column

TRY Brown Leghorns. You will never keep any other breed. 6d A. F. BRIGHT, Mazeppa, Minn.

BEE SUPPLIES.

Wholesale and Retail.

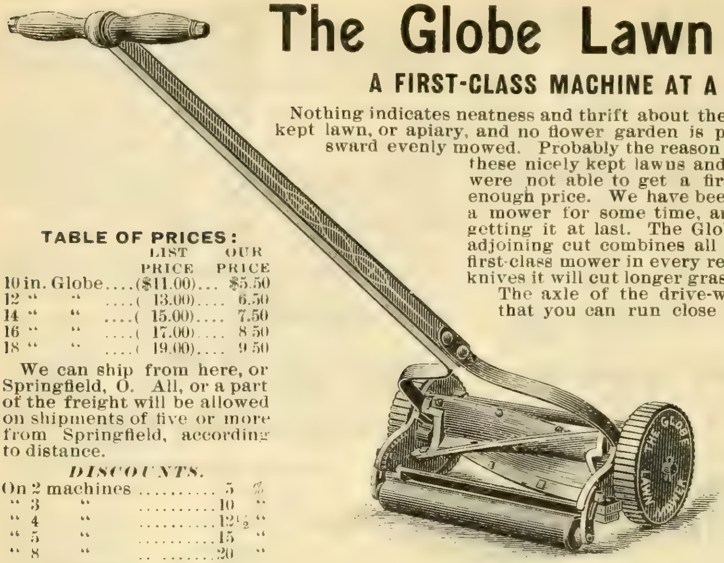
We have the largest steam-power shops in the West, exclusively used to make EVERYTHING needed in the Apiary, of practical construction and at the LOWEST PRICES. Italian bees, queens, 12 styles of Hives; Sections, Honey-Extractors, Bee-Smokers, Feeders, Comb Foundation, and everything used by bee-keepers, always on hand.

Illustrated catalogue FREE to all. Address 3-11db E. KRETCHMER, COBURG, MONTGOMERY CO., IOWA.

The Globe Lawn-Mower.

A FIRST-CLASS MACHINE AT A LOW PRICE.

Nothing indicates neatness and thrift about the house so well as a nicely-kept lawn, or apiary, and no flower garden is prettier than a nice green sward evenly mowed. Probably the reason more people do not have these nicely kept lawns and apiaries is because they were not able to get a first-class mower at a low enough price. We have been on the lookout for such a mower for some time, and we have succeeded in getting it at last. The Globe lawn-mower shown in adjoining cut combines all the best features, and is a first-class mower in every respect. Having only three knives it will cut longer grass than those having four. The axle of the drive-wheel does not project, so that you can run close to the hive. It has two drive-wheels and roller, and the driving gears are simply perfect. Nothing could be more simple and effective. The prices are very much lower than on any other first-class mower, in fact they are about as low as the cheap grade of machines, and yet this mower is not surpassed by any machine on the market, but is guaranteed to be first-class.



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We can ship from here, or Springfield, O. All, or a part of the freight will be allowed on shipments of five or more from Springfield, according to distance.

DISCOUNTS.

On 2 machines	5 %
" 3 "	10 "
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" 5 "	15 "
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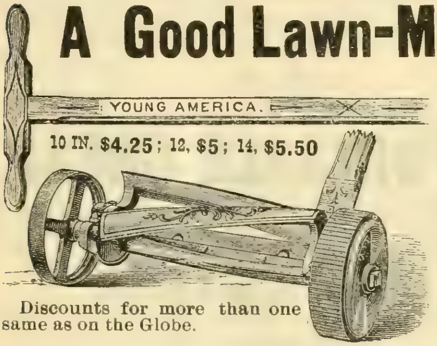
A. I. ROOT, Medina, Ohio.

A Good Lawn-Mower for Only $4.25.


YOUNG AMERICA.

10 IN. $4.25; 12, $5; 14, $5.50

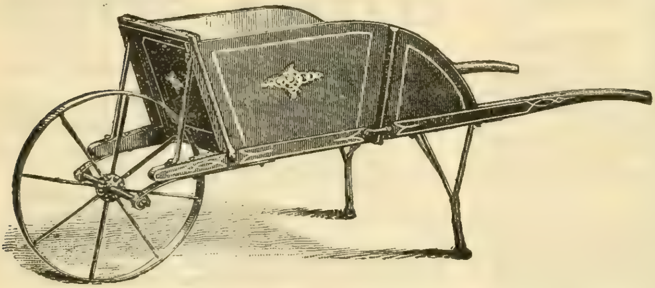
No argument is needed to convince you that a nice green lawn, well kept, beautifies the home, and indicates thrift. The reason many can not have such a lawn is because they can not get a good Lawn-mower cheap enough. Here is one we have been selling for three years. We have sold over 200, and they give universal satisfaction. They run surprisingly easy. Having only three knives on the reel, they will cut very long grass, and cut it close to the ground or not just as you choose, by holding the handle high or low. Recently the manufacturers made an assignment, and we secured their entire stock very low, and we are thus able to offer them at these very low prices:

10 INCH, $4.25; 12 INCH, $5.00; 14 INCH, $5.50.

Discounts for more than one same as on the Globe.

A. I. ROOT, Medina, O.

OUR DAISY WHEELBARROW.



OUR 35-POUND WHEELBARROW, CAPABLE OF CARRYING 500 POUNDS.

Who has not felt the need of a **Light, Strong,** and **Durable** and at the same time **Cheap** wheelbarrow? The cut shows one that combines all these qualities better than any other we have ever seen. We have two sizes — the smaller one weighing only 35 lbs., and yet it will carry 500 lbs. safely, and it can be packed so closely together for shipment that you can take the whole thing under your arm and walk off easily. The wheel has flat spokes instead of round. The different pieces are all cut and forged by means of dies. The legs are steel, so they will neither break nor bend, even if you bump them on the sidewalk. The springs are oil-tempered, with adjustable bearings, so the wheel will always run free. More than all, the wheelbarrows are the nicest job of painting and varnishing, I believe, I ever saw, for a farm implement. They are handsome enough to go around town with, and strong enough to do heavy work; and yet the price of the small size is only $4.00. The larger size is $4.25. They can be sent either by freight or express. It is only five minutes' work to put one together. You can do a good work and make good wages introducing these wheelbarrows to your neighbors. Write for terms to

A. I. ROOT, Medina, Ohio.

HOLY-LAND QUEENS

A SPECIALTY.

Bees in Langstroth frames, or by the pound or nucleus, and bee-keepers' supplies.
8-13db **GEO. D. RAUDENBUSH,**
Office 445 Chestnut St. Reading, Pa.

HERE I COME

To say that E. Baer, of Dixon, Ill., has sold out his supply business to the Goodell & Woodworth Mfg. Co., who will sell V-groove basswood sections at from $2.75 to $4.00 per M. Other supplies correspondingly low. Samples and circular free. Address the **GOODELL & WOODWORTH MFG. CO.,**
3tfdb **ROCK FALLS, WHITESIDE CO., ILL.**

1888. 1888.

Pure Italian Bees and Queens

for sale in Full Colonies or Nuclei. Five L. frame nuclei a specialty. My queens and bees possess all the good qualities of the most desirable honey-bee. Send for prices. **WM. LITTLE,**
6tfdb **Marissa, Ill.**

ITALIAN BEES FOR SALE.

Seventy colonies in ten-frame Langstroth hives, at $5.00 per colony. **JOHN GRANT,**
8-11db Batavia, Clermont Co., Ohio.

WANTED 1000 CUSTOMERS for Pure Italian bees & queens. Address, MARTIN & MACY,
6-11b No. Manchester, Indiana,
Or J. J. Martin & Co., Publishers of Rays of Light.

FREE! My catalogue of Bees, Queens, Apiarian Supplies, Standard Poultry (7 varieties), Japanese buckwheat, Green Mountain and Empire State potatoes. My stock is first-class. You should see my prices for 1888 before you order. CHAS. D. DUVALL,
5tfdb Spencerville, Mont. Co., Md.

DADANT'S FOUNDATION FACTORY, WHOLESALE and RETAIL. See advertisement in another column. 3tfbd

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ITALIAN BEES, QUEENS, AND EGGS

from high-class Silver Laced Wyandotte, and S. C. B. Leghorn fowls, at living rates. Price list free.
8tfdb GEO. A. WRIGHT, Glenwood, Susquehanna Co., Pa.

Oliver Foster, of Iowa.

Italian bees, 60 cts. per lb. in July, to $1.00 in April. Pkgs. with queens, brood, etc., cheap. *No foul brood near.*

BEE SUPPLIES.—Best sections, cases, and hives. Catalogue free. Send 5 one-cent stamps for pamphlet, "HOW TO RAISE COMB HONEY,"—chuck full of practical information "in a nutshell."
4-15db Address OLIVER FOSTER, Mt. Vernon, Ia.

Samples of the American Apiculturist

sent free. Also our price list of the best strain of pure Italian queens. Address 9tfdb
APICULTURIST, Wenham, Essex Co., Mass.

Seed Potatoes For Sale.

Extra Early Polaris. Will mail for 50c a pound until seed runs out. I also keep on hand all kinds of bee-supplies. **WM. P. SWARTZ,**
Schultzville, Lacka. Co., Pa., Box 26.

WANTED.—For cash, old U. S. postage stamps used prior to 1865. The stamps must be left on the original envelope. Send specimens of such as you have, inclosing stamp for reply. Address
D. R. HERRICK, Troy, New Hamp.

L. BRAHMAS, P. ROCKS, R. C. B. LEGHORNS, and PEKIN DUCKS; all strictly Pure-Bred. Eggs only $1.25 per setting; 2 settings, $2.00; safe arrival guaranteed. (Seven years' experience.)
6-8-10d *S. P. YODER, E. Lewistown, O.*

---

26 EGGS, $1.50; 13, $1.00. Todd strain of Brown Leghorns. A. F. BRIGHT, Mazeppa, Minn.

FOLDING BOXES.

Enclose your COMB HONEY in our Cartons Prices Reduced for 1888. Sample 5c. 20 page Catalogue of Glass Jars, Honey Labels, etc., FREE. Send for it. Address
A. O. CRAWFORD, S. Weymouth, Mass.

2-STORY

L. Hive, 80c

We still have a few of those 2-story L. hives with 10 brood-frames, for 80c each, in crates of 5 or more. Who will have them? Speak before it is too late.
SMITH & SMITH, 6tfdb **KENTON, OHIO.**

BEES AND QUEENS.

One pound, with a tested Italian queen, in May, $2.25; in June, $2.00. Tested queens, raised from imported mothers, $1.50 each; in June, $1.25. All kinds of bee-keepers' supplies furnished.
T. A. GUNN, Tullahoma, Tenn.

FOR SALE.

10 colonies of Italian bees, $5.00 each.
4 " hybrid " 4.50 "
All in one-story Simplicity hives. Ready now.
J. H. REED, Orleans, Ind.

UNTESTED ITALIAN QUEENS, bred from best imported and home-bred stock, $1.00 each, or three for $2.00, ready June 1st. Tested, $1.50 each. Will exchange for beeswax.
F. S. McCLELLAND, New Brighton, Pa.

Extractors in Missouri, Novice Style

for S. frame; hold 50 lbs. below frame, $6.00 each; 2 for $11.00. Only three left. Order quick if you want one. Also full colonies in Root's S. hive, tested Italian queen, $8.00; 2 for $15.00. Warranted queens, $1.00. Tested, $2.00. No foul brood in this part of Missouri. **S. S. LAWING, P. M.**
Henderson, Webster Co., Mo.

PLASTER MOLDS

for making foundation any size, $3.00. Foundation made on this plan will not sag or break down.
JOHN FARIS, Town House, Va.

ITALIAN BEES AND QUEENS.

Full colonies of Italian bees	$3 00
Tested queen	$1 25
Untested	75

C. WEEKS,
P. O. Money-order office, Clifton, Tenn.

MUTH'S

HONEY-EXTRACTOR,

SQUARE GLASS HONEY-JARS,

TIN BUCKETS, BEE-HIVES,

HONEY-SECTIONS, &c., &c.

PERFECTION COLD-BLAST SMOKERS.

Apply to CHAS. F. MUTH & SON,
CINCINNATI, O.

P. S.—Send 10-cent stamp for "Practical Hints to Bee-Keepers." 1tfdb

Wants or Exchange Department.

Notices will be inserted under this head at one-half our usual rates. All ad's intended for this department must not exceed 5 lines, and you must SAY you want your ad. in this department, or we will not be responsible for any error. You can have the notice as many lines as you please; but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale can not be inserted under this head. For such our regular rates of 20 cts. a line will be charged, and they will be put with the regular advertisements.

WANTED.—To exchange Johnston's Sweet-raspberry plants, for new varieties of strawberry, raspberry, and blackberry, or plum and sour-cherry trees. 7-10db **P. SUTTON**, Exeter, Luz. Co., Pa.

WANTED.—To exchange a fine gold watch, magic lantern, B. L. pullets, or from one to two hundred acres of land—plenty of basswood, etc., on good road, for Italian bees and supplies. Correspondence solicited. Address **G. C. HUGHES**,
8tfdb Pipestem, Summers Co., W. Va.

WANTED.—To exchange Italian bees and queens for Holstein male calf, or a good 2-seat buggy or hack. **J. W. COLWICK**,
9-10d Norse, Bosque Co., Texas.

WANTED.—To exchange eggs of B. Minorcas, Langshans, and fowls, for comb fdn., beeswax, tested queens, printing-press, and outfit; Flobert rifle; revolver, bee-supplies, and things useful.
9tfdb **E. P. ALDRIDGE**, Franklin Square, Ohio.

WANTED.—To exchange 50 Root chaff hives, and 1 Given press, new, and dies for L. frame, for comb or extracted honey, to be delivered next Sept. Write to **E. T. FLANAGAN**,
9-10d Belleville, St. Clair Co., Ills.

WANTED.—To exchange Wyandotte eggs for tested Italian queens. **W. H. OSBORNE**,
9-10d Chardon, Ohio.

WANTED.—Queens with ½lb. of bees, in exchange for raspberry plants; Turner, Cuthbert, Hansell, and Marlboro. Write what you want.
9-10d **GEO. H. COLVIN**, Dalton, Pa.

WANTED.—To exchange Italian bees in Simplicity hives, for cottage organ, B. L. shot-gun, dry goods, or offers. **W. B. COGGESHALL**,
9-10-11-12d Box 84. Summit, Union Co., N. J.

WANTED.—To exchange 1-story chaff hives with fixtures, for beeswax or poultry.
R. B. BONEAR, Cherry Ridge, Pa.

WANTED.—To exchange 12 "American" hives, with frames and combs, the latter a little rusty and imperfect, for two good colonies of Italians.
J. FERRIS PATTON,
Morris Ave. and 163d St., New York City.

WANTED.—To exchange a Little Giant fruit-evaporator for bees. Capacity 15 bushels per day.
A. LAUGHLEN, 18 King St., W. Toronto, Canada.

WANTED.—To exchange magic lantern (Anthony's make), 55 views, and bees, for Orchestrone organ, style 44 E. **L. HEINE**,
10d Bellmore, Queens Co., N. Y.

WANTED.—To exchange Light Brahma, Wyandot, Brown Leghorn, and Pekin duck eggs for hatching, from prize stock, for choice maple sugar.
CHAS. MCCLAVE, New London, Ohio.

WANTED.—To exchange 3000 sections, 1⅝ x 4¼ x 4¼, or will furnish ½, 1⅝, and 1¾, to make them 7 to the foot, for bees by the pound, with queen. The sections are white basswood, V-grooved, $3.00 per thousand. **W. D. SOPER**, Jackson, Mich.

WANTED.—To exchange Italian colonies, nuclei, or queens, for single buggy-harness, horse, foot-power saw, joiners' tools, watch, or cow.
10d **W. F. ASHE**, Edwardsville, Madison Co., Ill.

WANTED.—100 black or hybrid queens, 25c., in exchange for empty L. combs, 12½c. Correspond with **A. J. NORRIS**, Cedar Falls, Iowa.

WANTED.—To exchange 400 settings of pure Wyandotte Brown Leghorn eggs for mismated and tested queens. I allow one setting for mismated and 4 settings for tested. New variety of strawberries wanted.
10-11d **BENJ. ZURCHER**, Apple Creek, O.

WANTED.—To exchange Italian bees and back volumes of GLEANINGS and *A. B. J.* for Jersey cow, farm wagon, or offers. **C. WEEKS**.
Clifton, Tenn.

WANTED.—To exchange Ideal glass-front veil for a tested or warranted queen. Send her on, for 10 days. **J. C. CAPEHART**,
10d St. Albans, W. Va.

Black and Hybrid Queens For Sale.

For the benefit of friends who have black or hybrid queens which they want to dispose of, we will insert notices free of charge, as below. We do this because there is hardly value enough to these queens to pay for buying them up and keeping them in stock; and yet it is oftentimes quite an accommodation to those who can not afford higher-priced ones.

15 black queens for $2.25, or 20 cents for one.
CURTLE & CUYLER, Alexandria, Va. L. Box 199.

For sale, 4 good hybrid queens, raised from Italian mothers, at 50 cts. each. **D. D. HAMMOND**,
Malone, Clinton Co., Ia.

For sale, 100 black and hybrid clipped queens, at 30 c. and 45c.; all young, warranted. Ready now. Safe arrival guaranteed. **L. T. AYERS**,
Box 657. Kankakee, Kankakee Co., Ill.

For sale, 6 hybrid queens, reared last fall, which I will send by return mail for 40 cts. each.
G. D. BLACK, Brandon, Ia.

For sale, a few hybrid queens at 40 cts. each.
D. R. HERRICK, Troy, N. H.

For sale, about 15 hybrid queens at 40 cts. each; 2 for 75 cts. These are nice queens, and very prolific. Ready now. Safe arrival guaranted.
G. W. CRIBBS & SON, Heshbon, Ind. Co., Pa.

For sale, four mismated Italian queens left, 40 cts. each; 3 for $1.00 **S. S. LAWING**,
5—3—88 Henderson, Mo.

For sale, black and hybrid queens, each week, until 50 are sold; well packed, and safe arrival guaranteed. Black queens 25 cts.; hybrid queens, 40.
MRS. M. N. GOODRICH,
Rock Falls, Erath Co., Tex.

100 Colonies of Italian bees in Simp. hives, for sale cheap. 6d **A. F. BRIGHT**, Mazeppa, Minn.

DADANT'S FOUNDATION FACTORY, WHOLESALE AND RETAIL. See advertisement in another column. 3btfd

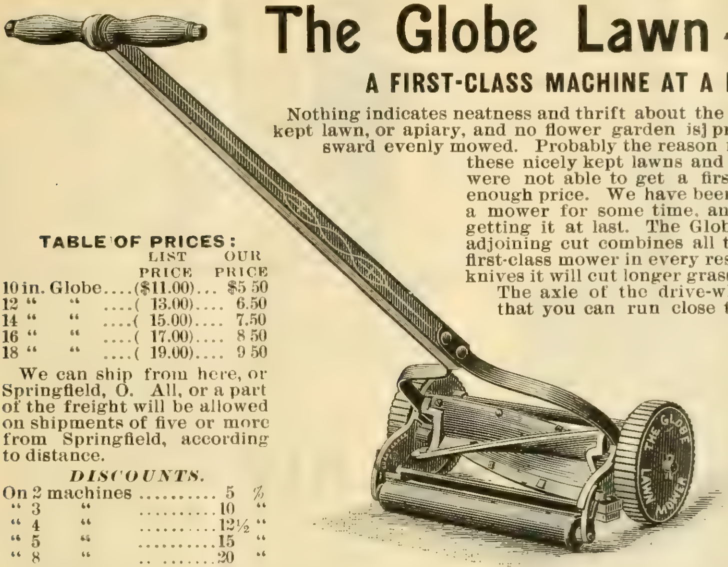
"FABLES AND ALLEGORIES."

Much to my surprise, we have sold, during the last year, over sixty of these beautiful and valuable books. Although at the time I considered the book well worth $2.00, I didn't suppose there were many who would want to pay that price for a book of that character. When we take into consideration, however, that it is not only about as handsome a book as can be found in our bookstores, externally and internally, but that is also a book in which godliness and purity shine forth from every page, it is perhaps not so very surprising. The book is not, in one sense, a religious book, for the principles are taught indirectly, in the form of a little story, or fable, and sometimes the reader does not see at once the application; but when it bursts upon him he feels a spirit of thankfulness for having been taught perhaps the very lesson he needs, by way of a sort of parable. The book contains 512 pages and 350 engravings. Many of the latter are some of the finest engravings that are to be found in modern print. The author of this work, Mr. Charles Foster, went to his heavenly rest during the past year; but it seems to me that his book will stand, much as the Pilgrim's Progress does, to help humanity through ages to come. Our new stock is even nicer than the last for they are in gilt binding; but the price will remain the same; viz., $2.00 each; two for $3.50, three for $1.65 each; five or more, $1.60 each. If wanted by mail, you will have to send 32 cts. extra, as the book is so very large and heavy. We can send it for five new names for GLEANINGS, you paying postage.

A. I. ROOT, Medina, O.

The Globe Lawn-Mower.

A FIRST-CLASS MACHINE AT A LOW PRICE.



Nothing indicates neatness and thrift about the house so well as a nicely-kept lawn, or apiary, and no flower garden is prettier than a nice green sward evenly mowed. Probably the reason more people do not have these nicely kept lawns and apiaries is because they were not able to get a first-class mower at a low enough price. We have been on the lookout for such a mower for some time, and we have succeeded in getting it at last. The Globe lawn-mower shown in adjoining cut combines all the best features, and is a first-class mower in every respect. Having only three knives it will cut longer grass than those having four. The axle of the drive-wheel does not project, so that you can run close to the hive. It has two drive-wheels and roller, and the driving gears are simply perfect. Nothing could be more simple and effective. The prices are very much lower than on any other first-class mower, in fact they are about as low as the cheap grade of machines, and yet this mower is not surpassed by any machine on the market, but is guaranteed to be first-class.

TABLE OF PRICES:

	LIST PRICE	OUR PRICE
10 in. Globe	($11.00)	$5 50
12 " "	(13.00)	6.50
14 " "	(15.00)	7.50
16 " "	(17.00)	8 50
18 " "	(19.00)	9 50

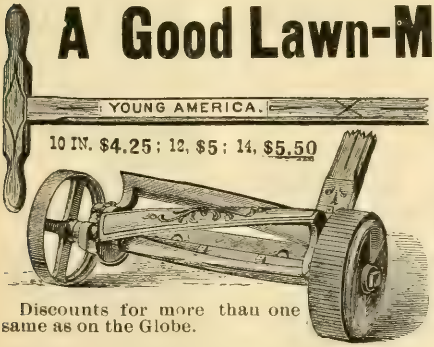
We can ship from here, or Springfield, O. All, or a part of the freight will be allowed on shipments of five or more from Springfield, according to distance.

DISCOUNTS.

On 2 machines	5	%
" 3 "	10	"
" 4 "	12½	"
" 5 "	15	"
" 8 "	20	"
" 10 or more,	25	"

A. I. ROOT, Medina, Ohio.

A Good Lawn-Mower for Only $4.25.



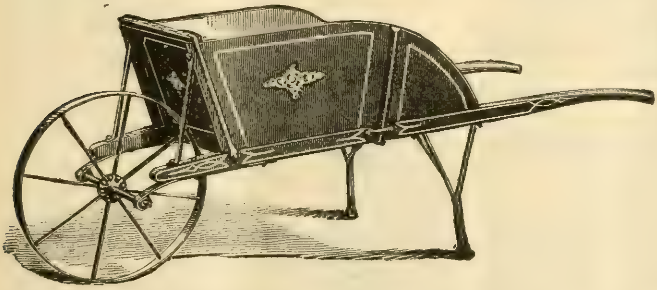
No argument is needed to convince you that a nice green lawn, well kept, beautifies the home, and indicates thrift. The reason many can not have such a lawn is because they can not get a good Lawn-mower cheap enough. Here is one we have been selling for three years. We have sold over 200, and they give universal satisfaction. They run surprisingly easy. Having only three knives on the reel, they will cut very long grass, and cut it close to the ground or not just as you choose, by holding the handle high or low. Recently the manufacturers made an assignment, and we secured their entire stock very low, and we are thus able to offer them at these very low prices:

10 INCH, $4.25; 12 INCH, $5.00; 14 INCH, $5.50.

Discounts for more than one same as on the Globe.

A. I. ROOT, Medina, O.

OUR DAISY WHEELBARROW.

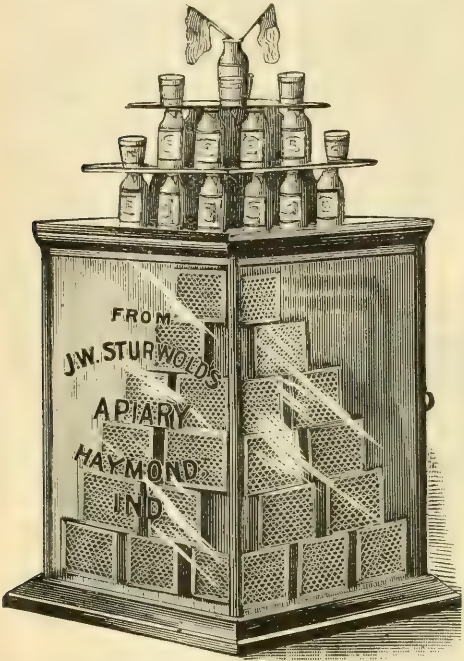


OUR 35-POUND WHEELBARROW, CAPABLE OF CARRYING 500 POUNDS.

Who has not felt the need of a **Light, Strong,** and **Durable** and at the same time **Cheap** wheelbarrow? The cut shows one that combines all these qualities better than any other we have ever seen. We have two sizes — the smaller one weighing only 35 lbs., and yet it will carry 500 lbs. safely, and it can be packed so closely together for shipment that you can take the whole thing under your arm and walk off easily. The wheel has flat spokes instead of round. The different pieces are all cut and forged by means of dies. The legs are steel, so they will neither break nor bend, even if you bump them on the sidewalk. The springs are oil-tempered, with adjustable bearings, so the wheel will always run free. More than all, the wheelbarrows are the nicest job of painting and varnishing, I believe, I ever saw, for a farm implement. They are handsome enough to go around town with, and strong enough to do heavy work; and yet the price of the small size is only $4.00. The larger size is $4.25. They can be sent either, by freight or express. It is only five minutes' work to put one together. You can do a good work and make good wages introducing these wheelbarrows to your neighbors. Write for terms to

A. I. ROOT, Medina, Ohio.

SHOW-CASE
FOR EXHIBITING HONEY.



Prospects are very favorable for a good honey crop this season; and the question will soon be pressing itself home to every bee-keeper, *How can I dispose of my honey to the best advantage?* I believe the majority will agree that it is most profitable to work up the home trade. To do this to the best advantage your honey should be put on sale in the most tasty manner at one or more of your grocery stores. A show-case like the above sets the honey off to the best advantage, besides keeping out dust and flies and meddlesome fingers. Price, crated ready for shipment, $4.00. With name and address, $4.50. This is $2.00 lower than we sold them for a year ago, because we make them ourselves. **A. I. ROOT, Medina. O.**

MY 20TH ANNUAL PRICE LIST OF ITALIAN, CYPRIAN, and HOLY-LAND BEES, QUEENS, NUCLEUS COLONIES, and APIARIAN SUPPLIES, sent to all who send me their name and address.
7-15d *H. H. BROWN, Light Street, Col. Co., Pa.*

BEAUTIFUL QUEENS FROM * * * IMPORTED MOTHERS

TESTED, $2.00; UNTESTED, $1.00.

LIZZIE NYSEWANDER, NEW CARLISLE, CLARKE CO., OHIO.
8-9tfd

BEES and QUEENS
READY TO SHIP.

Friends, if you are in need of Italian bees and queens, reared from imported mothers, I can accommodate you at the following low prices: Italian bees, ½lb., 75 cts.; 1 lb., $1.00; untested queens, $1.00; tested, $2.00. Hybrid bees, ½ lb., 65 cts.; 1 lb., 90 cts.; Hybrid queens, 75 cts. Prices by the quantity will be sent on application. 5-11d
W. S. CAUTHEN, Pleasant Hill, S. C.

☞In responding to this advertisement mention GLEANINGS.

ITALIAN BEES AND QUEENS.

Full colonies of Italian bees $3 00
Tested queen ....$1 25 | Untested............. 75

C. WEEKS,
10-11-12d P. O. Money-order office, Clifton, Tenn.

I ARISE to say to the readers of GLEANINGS that **DOOLITTLE** has concluded to sell **QUEENS** in their season, during 1888, at the following prices:

One untested queen....	1 00
Three untested queens	2 00
One untested queen reared by natural swarming......	1 50
Three ditto.............	3 00
One tested queen......	2 00
Three tested queens...	4 00
One tested queen by natural swm'g........	3 00
Three ditto...............	6 00
Tested queens, 1887 rearing, each...............	4 00
Extra, selected for breeding, two years old......	10 00

Two-frame nucleus with any queen for $2.00 extra. Circular free, giving full particulars regarding each class of queens. Address

G. M. DOOLITTLE,
5-13d Borodino, Onondaga Co., N. Y.

☞In responding to this advertisement mention GLEANINGS.

ALSIKE.

I sold more alsike seed last season than all the supply-dealers combined. Write to headquarters for prices. No poor seed in stock. Also 25 large pkts. of garden-seed, fresh and No. 1 in all respects, for 65 cts., *postpaid.* Write for further particulars, to C. M. GOODSPEED, Box 27, Thorn Hill, N. Y. Be sure and name Box 27 in answering this adv't. 2-48d

DO YOU KNOW

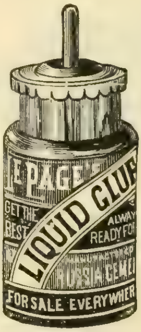
that I am headquarters for **Queen Mothers,** and full Colonies? 12 years in originating a superior strain of Italian Bees. If you mean business, I will cheerfully respond. Price list free.
Mention GLEANINGS. **F. BOOMHOWER,**
5tfd **Gallupville, N. Y.**

☞In responding to this advertisement mention GLEANINGS.

LITHOGRAPH LABELS
In 12 Colors, at $2.00 per 1000.

When Mr. James Abbott, of London, Eng., was with us a year ago, he had samples of a very neat lithograph label, oblong in shape, measuring 2⅛x2⅝. We mentioned them at the time in GLEANINGS, agreeing to send samples as soon as we received them. Well, they have just come to hand, although we ordered 50,000 over a year ago. They are about the nicest labels we ever saw for glass tumblers, pails, and small packages of honey. We will mail a sample inclosed in our label catalogue, free on application, and will furnish them postpaid at the following prices: 5 cts. for 10; 40 cts. for 100; $1.25 for 500; $2.00 for 1000. A. I. ROOT, Medina, O.

LEPAGE'S LIQUID GLUE.



Few words of praise are necessary for this excellent article, so widely known and advertised. It is one of the best of liquid glues. Always ready for use. Mends every thing. We have 4 different-sized packages.

Glass bottle like the adjoining cut for 10 cts.; 75 cts. for 10; $7.00 per 100. Half-gill tin cans with screw cap, and brush fastened to inside of cap, price 15 cts. each; $1.10 for 10; $10.50 per 100. This latter can be sent by mail for 10c. extra for postage and packing.

Gill tin can with brush, 20 cts.; 10 for $1.50; 100 for $14.00; ½-pint tin cans, no brush, 25 cts.; $2.20 for 10; $21.00 per 100.

LePage's MUCILAGE, in large bottles, with a nice enamel-handle brush, at 10 cts. each; 75 cts. for 10; $7.00 per 100. This is the best mucilage made, and will do nicely in many cases for glue, although it is pretty thin to be used as glue.

A. I. ROOT, Medina, O.

NEARLY THIRTY TONS
—OF—
DADANT'S FOUNDATION
SOLD IN 1887.

It is kept for sale by Messrs. T. G. Newman & Son, Chicago, Ill.; C. F. Muth, Cincinnati, O.; Jas. Heddon, Dowagiac, Mich.; F. L. Dougherty, Indianapolis, Ind.; B. J. Miller & Co., Nappanee, Ind.; E. S. Armstrong, Jerseyville, Ill.; E. Kretchmer, Coburg, Iowa; P. L. Viallon, Bayou Goula, La., M. J. Dickason, Hiawatha, Kansas; J. W. Porter, Charlottesville, Albemarle Co., Va.; E. R. Newcomb, Pleasant Valley, Dutchess Co., N. Y.; D. A. Fuller, Cherry Valley, Ill.; J. B. Mason & Sons, Mechanic Falls, Maine; G. L. Tinker, New Philadelphia, O., Jos. Nysewander, Des Moines, Ia.; C. H. Green, Waukesha, Wis.; G. B. Lewis & Co., Watertown, Wis.; J. Mattoon, and W. J. Stratton, Atwater, O., Oliver Foster, Mt. Vernon, Iowa; C. Hertel, Freeburg, Ill.; Geo. E. Hilton, Fremont, Mich.; J. M. Clark & Co., 1409 15th St., Denver, Colo.; Goodell & Woodworth Mfg. Co., Rock Falls, Ill.; J. A. Roberts, Edgar, Neb., E. L. Goold & Co., Brantford, Ontario, Canada, and numerous other dealers.

Write for *free* samples, and price list of bee supplies. We *guarantee every inch* of our foundation *equal to sample in every respect.* Every one who buys it is pleased with it.

CHAS. DADANT & SON,
3btfd **Hamilton, Hancock Co., Illinois.**

☞In responding to this advertisement mention GLEANINGS.

J. P. Caldwell, of San Marcos, Tex.

Pure Italian queens.	April.	May.	Jun. to Oct.
Select tested	$2 75	$2 25	$1 75
Tested	1 75	1 50	1 25
Untested	1 00	90	75
Six untested	5 00	4 40	3 75
Twelve untested	9 50	8 00	7 00

All queens will be shipped in cages which answer the double purpose of an introducing and shipping cage. Address J. P. CALDWELL, San Marcos, Tex.
7-18db Please mention GLEANINGS.

PURE ITALIAN BEES FOR SALE.

Full colony in A. I. Root's Simp. hive $6.00. Two-frame nuclei $3.00. Three-frame $3.50. Each nucleus and full colony to contain a tested queen and plenty of bees and brood, all on wired L. frames, combs drawn from fdn. Hives new, every thing first-class. To be shipped in June. Safe arrival guaranteed. I shall do by all as I would be done by. Address
Mention GLEANINGS. **N. A. KNAPP,**
7-10db **Rochester, Lorain Co., O.**

ITALIAN QUEENS BEE-HIVES,
T-TIN CASES, SECTIONS, METAL CORNERS,
Honey-Extractors, and Fruit-Boxes.
3tfd *SEND FOR PRICE LIST.*
B. J. MILLER & CO., - Nappanee, Ind.

☞In responding to this advertisement mention GLEANINGS.

HEADQUARTERS IN THE WEST FOR PURE ITALIAN
BEES and QUEENS.

Full colonies, from $5.00 to $9.00 each; 2-frame nucleus, untested queen, in May, $2.50; June, $2.25; after, $2.00; 3-frame, in May, $3.50; June, $3.00; after, $2.50. With TESTED queen, add 50c more. Bees, per lb., in May, 90 cts.; June, 75 cts.; after, 60 cts. Untested queens in May, $1.00; after, 75 cts.; six, $4.00. Tested, in May, $1.50; after, $1.25. Write for circular of Bees, Queens, Sections, Foundation, etc.
6-14db Address JNO. NEBEL & SON, High Hill, Mo.

☞In responding to this advertisement mention GLEANINGS.

BEES, Queens, Hives, Given Comb Foundation, Apiarian Supplies, German Carp, Small-fruit Plants. Send for catalogue free. E. T. Flanagan, Belleville, Ills. 1-24db.

HOW TO RAISE COMB HONEY. See Foster's advertisement on another page. 4-15db

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WRITE TO JOHN CALLAM & CO.,
LUMBER DEALERS, KENTON, OHIO,
—FOR PRICES ON—
BEE-HIVES, SECTIONS,
And General Supplies for Bee-keepers
New Factory. Low Prices. Good Work.
3-14 db

☞In responding to this advertisement mention GLEANINGS.

FOLDING BOXES.

Enclose your COMB HONEY in our Cartons. Prices Reduced for 1888. Sample 5c. 20 page Catalogue of Glass Jars, Honey Labels, etc., FREE. Send for it. Address
A. O. CRAWFORD, S. Weymouth, Mass.
10-21db.

IF YOU HAVE LOST ALL YOUR BEES, you had better send a postal card for my prices for the coming season. 8tfdb THOMAS GEDYE, LaSalle, Ill.

The BUYERS' GUIDE is issued March and Sept., each year. It is an encyclopedia of useful information for all who purchase the luxuries or the necessities of life. We can clothe you and furnish you with all the necessary and unnecessary appliances to ride, walk, dance, sleep, eat, fish, hunt, work, go to church, or stay at home, and in various sizes, styles and quantities. Just figure out what is required to do all these things COMFORTABLY, and you can make a fair estimate of the value of the BUYERS' GUIDE, which will be sent upon receipt of 10 cents to pay postage,
MONTGOMERY WARD & CO.
111-114 Michigan Avenue, Chicago, Ill.

☞In responding to this advertisement mention GLEANINGS.

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200 POUNDS OF BEES

at $1.00 a pound. Italian queens $1.00 each. Circular free. **S. C. PERRY,**
Portland, Ionia Co., Mich.

LOOK HERE!

I will sell Italian queens from one of A. I. Root's imported queens. One untested queen, $1.00. Tested queen, $2.00. Select tested queen, $3.00. I also give a box of my pure vegetable liver pills free with each queen. Address
DR. L. L. LOOMIS,
6-17b Pemberville, Wood Co., O.

☞In responding to this advertisement mention GLEANINGS.

DADANT'S FOUNDATION FACTORY, Wholesale and retail. See advertisement in another column. 3btfd

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Cash for Beeswax!

Will pay 22c per lb. cash, or 25c in trade for any quantity of good, fair, average beeswax, delivered at our R. R. station. The same will be sold to those who wish to purchase, at 27c per lb., or 30c for *best selected wax.*

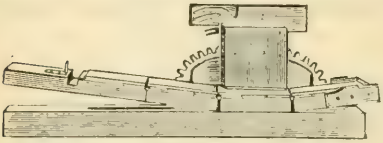
Unless you put your name *on the box*, and notify us by mail of amount sent, I can not hold myself responsible for mistakes. It will not pay as a general thing to send wax by *express.*
A. I. ROOT, Medina, Ohio.

1888. ITALIAN QUEENS. 1888.

June, $2.00. After, $1.50. Queens warranted purely mated, $1.00: 6 for $5.00. For further particulars see GLEANINGS Apr. 1st, p. 271.

J. T. WILSON, Nicholasville, Ky.

SECTION FOLDER.



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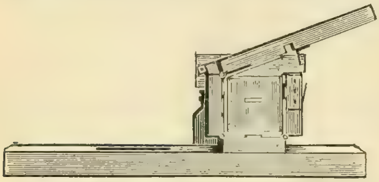


FOLDED. (Patent applied for.)

☞500 every hour. Corners need no moistening. No breaking. Every section square and perfect. Every honey-producer should have a machine.

Bee-hives, sections, cases, foundation, and all aparian supplies.

QUEENS AND BEES FOR 1888. It should be borne in mind that we are headquarters for the Albino Queens. Address **S. VALENTINE & SONS, Hagerstown, Washington Co., Md.**

☞In responding to this advertisement mention GLEANINGS.

PURE ITALIAN QUEENS.

Untested, $1.00; tested, $2.00; select tested, $2.50; standard breeders, $3.00. Bees in cages or nuclei, $1.00 per lb. **R. H. CAMPBELL,**
11-16db **Madison, Morgan Co., Ga.**

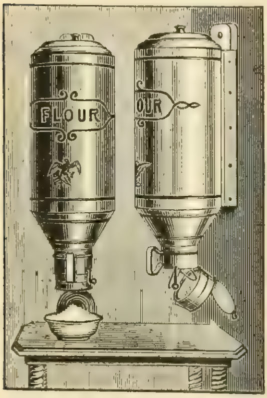
☞In responding to this advertisement mention GLEANINGS.

ITALIAN BEES IN MISSOURI.

Don't send East. I have them here in their purity. Queens, $1.00. Tested queens, $2.00. Ready now. **S. S. LAWING, P. M., Henderson, Mo.**

Tyler's Flour - Receptacle.

A Much-Needed Household Convenience.



This is the most convenient arrangement for flour that we have ever seen. It holds just a 49-lb. sack of flour. It is to be hung on the wall just above your table. When you want some flour simply place your pan under it, open the lid on the bottom and turn the crank and you get your flour already sifted. It is simple, neat, and effective, and not expensive either. Price $3.00 each, crated ready for shipment. A crate of 6 direct from factory, for $15.00.

A. I. ROOT, Medina, O.

ELLISON'S FINE ITALIAN QUEENS

FOR REMAINDER OF SEASON OF 1888.

1 untested queen	- - - - - -	75
3 " "	- - - - -	2 00
1 tested "	- - - - - -	1 50
3 " "	- - - - -	4 00

Invariably by return mail, and safe arrival guaranteed.

W. J. ELLISON, Stateburg, Sumter Co., S. C.

☞In responding to this advertisement mention GLEANINGS.

I WILL SELL one pound of brown or black bees for 80 cts. Queen to go with them, $1.25. Also one Pelham fdn. mill, 6-inch, for sale cheap, or exchange for wax. **THOMAS GEDYE, LaSalle, LaSalle CO., Ill.**

THE OLD AND RELIABLE
Knickerbocker Bee-Farm.

(Established 1880.)

It will **PAY** you to send for our circular and price list of bees and queens before ordering elsewhere. Address **GEO. H. KNICKERBOCKER,**
Pine Plains, Dutchess Co., N. Y. Box 41.

☞In responding to this advertisement mention GLEANINGS.

APIARY FOR SALE.

Movable octagon bee-house for 76 hives, new, can be loaded on a wagon, cost over $100. Simplicity and L. Hives and frames for 80 colonies; Heddon supers for comb honey; and several colonies of bees. $125 takes the lot at once.

J. SINGLETON, Brooklyn Vill., Ohio.

☞In responding to this advertisement mention GLEANINGS.

BEE - SUPPLIES
AT DIFFERENT PLACES,
TO BE DISPOSED OF AT A SACRIFICE.

These are all new and first-class goods, which, for various reasons, are on our hands, away from home; and to dispose of them we offer them very low. If some of our readers, not far from where the goods are, need them, this is a good opportunity to get a bargain. Indicate which one you want, by the number as well as name.

No. 1. At Eureka Springs, Carroll Co. Ark.
100 wide frames, to hold eight 1-lb. sections. Value $2.00. Will sell for $1.50.

No. 2. At San Marcos, Hays Co., Texas.
5000 prize sections, 5¼ x 6¼ high. Value $20.50. Will sell for $17.00.

No. 4. At Eureka, Ill.
100 lbs. of heavy brood foundation, 8⅝ x 17⅛, for wired L. frame. Value $36.00. Will sell for $32.00.

No. 6. At Lawrenceburg, Tenn.
One No. 1 Honey-extractor, for frames 11¼ x 12½ or less in depth. Value $6.00. Will sell for $4.50.

No. 7. At Yorktown, Delaware Co., Ind.
11 Heddon slatted honey-boards double bee-space. Value $1.00. Will sell for 75 c.

No. 9. At Higginsville, Mo.
One 4 H. P. engine and boiler complete, used only five months. Worth new, $275. Will sell for $195.

No. 10. At Aplington, Ia.

10 two-story portico hives in flat	$9.00	Value $24.60. Will sell for $20.00.
100 metal-cornered frames	2.20	
100 wide frames	2.00	
200 tin separators	3.00	
600 sections	2.40	
200 sections, 5⅝ x 4¼	1.00	
3 lbs. thin foundation, 49 c	1.47	
7 lbs. brood foundation, 39 c	2.73	
10 enameled sheets	.80	

No. 11. At Johnson City, Washington Co., Tenn.
One honey-extractor that will take frames 11½ x 16, or smaller. Value $7.00. Will sell for $5.00.

No. 12. At Caribou, Me.
900 sections, 4¼ x 5 x 1 7/16 wide, open on all four sides. Value $4.50. Will sell for $2.50.

No. 15. At Rockdale, Mass.
1000 sections, 4¼ x 4¼ x 1¾, open all around. Value $4.60. Will sell for $3.00.

No. 16. At Lochiel, Ind.
20 slatted honey-boards to use between brood-chamber and T supers on Simp. hives, bee space top and bottom as we now make them. Value $1.80. Will sell for $1.50.

No. 17. At Berlin, Wis.
One 36-inch Exhaust Fan, second hand. It was used about 8 years in our factory. Boxes have been re-babbitted and the fan is in first-class running order. A new one this size is worth about $100.00. We will sell this for $25.00. It is a bargain to the one who is in need of one this size.

No. 18. At Lugonia, Cal.
One light-power saw-mandrel, $5.00; one 8-in. rip-saw, $1.15; one 6-in. cut-off saw, $.80; and one 5-in. dovetailing saw, $.85. Worth $7.80. Will sell for $6.50.

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KIND WORDS FROM OUR CUSTOMERS.

Carry on the good work against the use of tobacco; and may the Lord bless you. C. S. WALKER.
Grafton, Vermont, March 19, 1888.

PLEASED.

The goods I ordered of you all came to hand. I counted the 100 enamel sheets over, and found one too many, and all other goods with corresponding correctness. I advise all parties wishing to be used well, and to get full value for their money, to trade with A. I. Root, as he always gives me my dues. Your veils, I think, are the best thing out, as a man can see as well with one on as he can without it.
McIvor, Mich., May 11, 1888. M. SCHNEIDER, JR.

GLEANINGS AND NO OTHER BEE-PAPER.

I am very much pleased with GLEANINGS and the binder; and as long as I take it, I want the binder also. GLEANINGS is all the publication on bees that I take, and it is good enough for me, for I am satisfied you keep posted on all such affairs, and are constantly disclosing new light to your subscribers. I am truly glad your subscription-list is getting so large. I wish it would run up to one hundred thousand. J. T. MCCRACKEN.
Rosebud, Ala., April 18, 1888.

[I am sure, friend M., that we are very much obliged to you for your kind words; but I fear you are making a mistake. We hope GLEANINGS is good as far as it goes; but it does not cover the whole ground of bee culture. We think you will find it profitable to read the other journals — at least a part of them. I do not believe it is a good plan to confine oneself to one paper on any subject.]

VEGETABLE PLANTS — SENDING THEM LONG DISTANCES BY EXPRESS.

The vegetable plants were received in fine order. I hesitated to send to you, on account of high expressage, but your prices are so much less than Chicago prices that I gained the difference in expressage, and more than $1.00 besides.
Marengo, Ill., May 12, 1888. C. C. MILLER.

THE WATERBURY WATCHES AS THEY ARE MADE NOWADAYS.

The Waterbury watch arrived about a week ago, and in that time it has not varied from my eight-day clock one minute; and my clock, I will wager, will not vary one minute in a month from the true time. So much for the Waterbury.
Sweet Water, San D. Co., Cal. A. W. OSBURN.

[I believe, friend O., that this is the universal verdict in regard to the Waterbury watches. There is nothing on the face of the earth to be compared with them in the way of accuracy, for the small sum of money they cost. I do not know how long they will last; but if I had to buy a new one every three years I would rather do it than to carry any other watch, no matter what its value is, even if it were given to me. The above is simply the opinion of A. I. Root.]

AT HIS OLD TRICKS AGAIN.

Friend Root:—I see you are at your old tricks again. Some time since I sent a postal note of $2.00, expecting to get GLEANINGS and a *paper-covered* A B C. The former came all right; but the A B C was a neat *cloth-bound* book, which is an ornament to any library. The "trick" of which we write is, to do a little better than you promise. Now, it's said that it is hard to teach an old dog new tricks, so I shall not attempt to convert you from the error of your ways; but you will accept thanks for the book. Although I am new in the business, I have known of your methods for about three years, and now come knocking for admittance to the circle of bee-keepers. After one season's experience I have started off on my own account, with 140 stands of hybrid Cyprians which I bought in January. In the A B C I find an explanation to clear all tangles so far. You will pardon me if I say it's a boon to learners of the art; and ("tell it in Gath") is used more frequently now by the writer than the good book which so many are using as a guide-board along the stormy path of life. W. A. WEBSTER.
Bakersfield, Kern Co., Cal., April 27, 1888.

[Friend W., I am not nearly as good a man as you think I am. The above came about because the boys decided to furnish a cloth-covered A B C book in connection with GLEANINGS for an even $2.00. It was published some little time ago, but perhaps you omitted to notice it.]

500 Lbs. Italian Bees

READY TO SHIP ON SHORT NOTICE.

1 lb., $1.25; 2 lbs., $2.00; 5 lbs., $4.00; 10 lbs., put up in two packages, $7.50.

Tested Italian queen, one year old, $2 25; two years old, $2.00. A few hybrid or mismated queens, 50 cts. each. Full colonies with tested queen, $6.00 in 8-frame L. hive. Large discounts on full colonies in 10 to 50 lb. lots. Above ready to ship now. 200 colonies to draw from. Untested queens, after June 10, $1.00 each by mail, when not ordered with bees. 5-lb. pkgs. of bees will contain 1 Gallup comb, with brood. I guarantee all bees to reach you in good condition, and to give perfect satisfaction.

Postoffice and American Express money orders, on Kalamazoo, Mich. Also Draft on New York or Chicago, at my risk. References furnished if called for. Address **O. H. TOWNSEND,**
11-12d **Alamo, Kalamazoo Co., Mich.**

PURE ITALIAN QUEENS.

Our apiary is located thirteen miles from town, and we keep nothing but pure stock. Untested queens, $1.00 each. Address

VALLEY-HOME APIARY, Uvalde, Tex.

UNTESTED ITALIAN QUEENS, bred from best imported and home-bred stock, 75c each, or three for $2.00. Tested, $1.50 each.
F. S. McCLELLAND, New Brighton, Pa.

TESTED ITALIAN QUEENS, $1.00 each; untested, 75c each; three for $2.00. Daughters from one of D. A. Pike's Albino queens, same price. Three-frame nucleus, with tested queen, $3.00. Bees per pound, 75c. **I. R. GOOD,**
11tfdb **Nappanee, Ind.**

CARNIOLAN · QUEENS.

Gentlest bees known; not surpassed as workers, even by the wicked races.
Imported queens, "A" grade, $8.00. Tested, $4.00. Untested, $1.00; ½ doz., $5.00.

Never saw foul brood. Ask on postal card for circular.
S. W. MORRISON, M. D.,
Oxford, Chester Co., Pa.

☞In responding to this advertisement mention GLEANINGS.

HONEY COLUMN.

CITY MARKETS.

NEW YORK.—*Honey.*—Prices for comb honey in a small way remain about the same as our last quotations; yet for job lots we are refusing no reasonable offers. This spring has been the dullest one for comb honey we have seen in several years. We are using our utmost endeavors to work our stock down so as to be ready for the next crop.

HILDRETH BROS.,
May 21. 28 & 30 West Broadway, N. Y.

The partnership heretofore existing between J. M. McCaul, L. S Hildreth, and H. P. Hildreth, under the firm name of McCaul & Hildreth Bros., expires this day by limitation.

The undersigned will settle all business connected with the late firm of McCaul & Hildreth Bros., and continue the business as manufacturers of grocers' specialties and dealers in honey, maple sugar, imported and domestic salad oils, etc., at 28 & 30 West Broadway, the location formerly occupied by the late firm. A continuance of your patronage is solicited, and all orders will be carefully and promptly filled.

Respectfully, HILDRETH BROS.

ST. LOUIS.—*Honey.*—We have to report increased receipts of honey. The demand is also better. Prices range from 5½ @ 6½, for very choice, light color, 7c. We look for a good trade this season.

D. G. TUTT GROCER CO.,
May 21. 206 N. Commercial St., St. Louis, Mo.

CINCINNATI.—*Honey.*—No change in the market worthy of note from our last quotations. Supply is good and demand fair for extracted honey. Prices as last quoted. *Beeswax.*—No change in the market, which brings 20@22 on arrival for good to choice yellow.

CHAS. F. MUTH & SON,
May 26. Cincinnati, O.

KANSAS CITY.—*Honey.*—We quote 1-lb. comb, white, 16@18c; 2-lb. white, 15@16. Extracted, 7@7½. *Beeswax*, No. 1, 20c; No 2, 17.

CLEMONS, CLOON & CO.,
May 21. Kansas City, Mo.

NEW YORK.—*Honey.*—Market very dull. No demand for comb honey. Extracted in better demand again. New Southern extracted honey arriving. *Beeswax* scarce, and brings 24@27c, according to quality.

F. G. STROHMEYER & CO.,
May 21. 122 Water St., N. Y.

CHICAGO. — *Honey.* — Our market is very quiet in the way of honey sales; still there is a little selling all the time. Prices range from 14@15 for the better grades; extracted, 6@8. *Beeswax*, 23.

R. A. BURNETT,
May 22. 161 So. Water St., Chicago, Ill.

DETROIT.—*Honey.*—No change since last quotations in prices; the market will be bare of first-class comb honey before the new comes in. *Beeswax*, 23@24.

Bell Branch, Mich., May 22. M. H. HUNT.

ALBANY.—*Honey.*—Light stock, all grades, and prices steady, but demand light now.

H. R. WRIGHT,
May 28. 328 Broadway, Albany, N. Y.

COLUMBUS.—*Honey.*—Quote market dull; no particular change since last writing.

EARLE CLICKENGER,
May 21. 119 E. Town St., Columbus, Ohio.

BOSTON.—*Honey.*—No change in prices. Sales slow.

BLAKE & RIPLEY,
May 21. 57 Chatham St., Boston, Mass.

WANTED.—To exchange Root Simplicity bee-hives for beeswax.
11d C. E. BOYER, Ainger, Williams Co., Ohio.

WANTED.—To exchange one 10-in. Pelham fdn. mill, eggs from Wyandottes, S. S. Hamburgs, W. P. Rocks, or English rabbits and pouter pigeons, for Japanese buckwheat, lop-eared rabbits, Italian queens, or offers.

A. D. D. WOOD, Rives Junction, Mich.

WANTED.—To exchange chaff hives, all complete, or other hives, for queens, or bees by the pound. Make offers.

S. F. REED, N. Dorchester, N. H.

Unparalleled Offer!

I will have about 15 tested Italian queens to mail in May, at $1.00 each. Also queens for season, and nuclei very cheap. State what you want, and address S. F. REED, N. Dorchester, N. H.

SPECIAL NOTICES.

BEE-KEEPERS' HATS.

We now have a good supply of these light, airy, broad-brim hats for working among the bees. Price 20c; by mail, 22c. We expect in next issue to give cut.

JAPANESE BUCKWHEAT ADVANCED.

After this date we are compelled to advance prices to the following: 1 lb., 15 cts.; ½ peck, 75; 1 peck, $1.25; ½ bushel, $2.25; 1 bushel, $4.00. We have sold over 100 bushels of seed, and have to pay more for what we now offer, at above prices; hence we are obliged to advance.

DOUBLE-POINTED TACKS FOR T SUPERS.

These are illustrated and described elsewhere in this issue. They are made of No. 16 wire, ⅜ wide by 1 inch long before being folded, and there are about 420 to a pound. We can furnish them folded at 10 cts. for 3-oz. pkg.; 40 cts. per lb.; $3.50 for 10 lbs. Not folded, at one-half these prices.

BEE-VEILS ADVANCED.

We are compelled to advance the price of bee-veils again, owing to the higher cost of material. Advanced prices will take effect June 15, and will be as follows:

Best veil, grenadine, with silk Brussels net face, 80 cts. each; $6.00 for 10.

All grenadine veil, 65 cts. each; $4.75 for 10.

Mosquito-bar veil, with Brussels net face, 40 cts. each; $3.00 for 10.

All mosquito-bar veil, 25 cts. each; $2.00 for 10.

A bee-hat will be added to any of the above for 20 cts. extra, postpaid.

A NEW PLANT-PROTECTOR.

THIS first day of June, the bugs poured on to us all of a sudden, and a good deal as they did last year. Well, now, there are two objections to the plant-boxes for bugs: They cut off the light, making the plants grow long-legged in trying to get out of that hole at the top, and they also keep off the dews of night more or less. Another thing, it needs a horse and wagon to carry them to the field and back again. After studying over the matter about three hours, I went into our packing-room and asked them if they had any damaged wire cloth 18 inches wide. This I took to the tinners, and directed them to cut off square pieces. These would be 18 inches square, of course. Well, when this was done, the foreman in the saw-room made me a box much like our plant-boxes, but it was square, and measured one foot each way on the top edge. The tinners were now instructed to take the squares of wire cloth and lay them on top of this box, or form, while they turned the corners down in the way you see bread-pans, made of tin. The result was a wire-cloth tray, or pan, 12 inches square at the bottom, with sloping sides nearly six inches high. The sides were made sloping so they can nest one into the other. A man can carry 100 of these to the field, and it is a very quick job to drop them over the hills of mellons and squashes. The plants have almost as much air and light as if nothing at all were over them. They also have the full benefit of the dews of night; and when you are done with them it is but a small job to nest them up and put them away. With our facilities we can afford them for 5 cents each. We can furnish a smaller size for single plants, for 4c each. By mail, 25c postage for 10; the larger size, by mail, in lots of 10, for 50 cents additional for postage. You may have to straighten the kinks, however, after receiving them. We should not like to be responsible for the doubling-up which might happen in the mail-bags. We will try to give you an engraving of the plant-protector, and the wooden form we use to make them on, in our next issue.

GLEANINGS IN BEE CULTURE.
DEVOTED TO BEES, HONEY & HOME INTERESTS.

Vol. XVI. JUNE 1, 1888. No. 11.

TERMS: $1.00 PER ANNUM, IN ADVANCE; 2 Copies for $1.90; 3 for $2.75; 5 for $4.00; 10 or more, 75 cts. each. Single number, 5 cts. Additions to clubs may be made at club rates. Above are all to be sent to ONE POSTOFFICE.

Established in 1873.
PUBLISHED SEMI-MONTHLY BY
A. I. ROOT, MEDINA, OHIO.

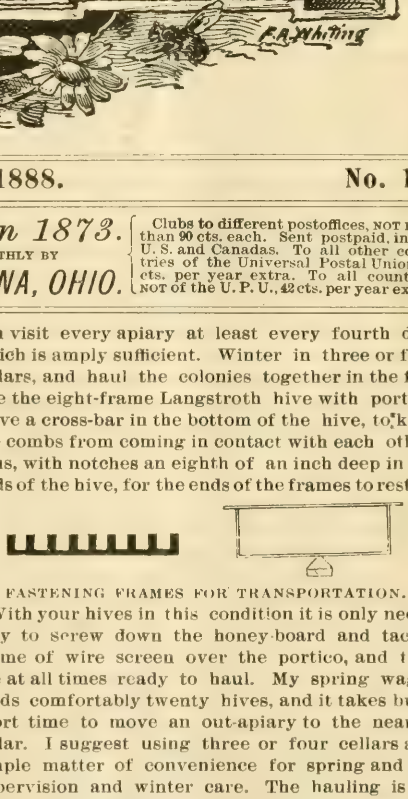
Clubs to different postoffices, NOT LESS than 90 cts. each. Sent postpaid, in the U. S. and Canadas. To all other countries of the Universal Postal Union, 18 cts. per year extra. To all countries NOT of the U. P. U., 42 cts. per year extra.

MANAGEMENT OF OUT-APIARIES.

HOW TO MANAGE 1000 COLONIES WITH ONLY ONE BEE-KEEPER AND TWO ASSISTANTS.

IN a recent number of GLEANINGS I have explained how I manage my bees at present so as to obtain a reasonable profit with little labor. I will now endeavor to answer a little more fully question No. 20, and at the same time reply to Mr. France's article on page 164. He says that it surprises him when I state that one bee-keeper with two assistants can manage 1000 colonies when distributed in ten apiaries. Well, let us see! Perhaps I should have been more explicit; but I did not think that it would be presumed that one bee-keeper with two assistants, i. e., three men, could so divide themselves that they could be present in ten apiaries at the same time, so as to watch for and hive all the swarms. Hiving swarms has usually been the work of some girl or boy of the farmer at whose place I had planted an apiary, and was always cheaply done. But outside of the simple work of hiving swarms when every preparation is made, the queen's wings clipped, and second swarms prevented, I do say that three men can very readily handle 1000 colonies of bees advantageously when distributed in ten apiaries. This is my plan:

Have your apiaries so located that you can readily reach three or four of them in one day by driving not to exceed twenty miles, going and return trip included. This can be arranged, as it is not necessary to have your apiaries more than two miles apart, and sometimes not that. In this way you can visit every apiary at least every fourth day, which is amply sufficient. Winter in three or four cellars, and haul the colonies together in the fall. Use the eight-frame Langstroth hive with portico. Have a cross-bar in the bottom of the hive, to keep the combs from coming in contact with each other, thus, with notches an eighth of an inch deep in the ends of the hive, for the ends of the frames to rest in.



FASTENING FRAMES FOR TRANSPORTATION.

With your hives in this condition it is only necessary to screw down the honey-board and tack a frame of wire screen over the portico, and they are at all times ready to haul. My spring wagon holds comfortably twenty hives, and it takes but a short time to move an out-apiary to the nearest cellar. I suggest using three or four cellars as a simple matter of convenience for spring and fall supervision and winter care. The hauling is no great labor, is quickly done, and at a time when there is little else to do. I assume further, for the sake of this argument, that your only forage for surplus is white clover and basswood, as it is with me. Let us start in spring with, say, 850 colonies, and end up the season with 1150, which will be a fair average of 1000 for the season. As soon as spring opens, examine every colony to ascertain its strength and food supply, and give to each the necessary care and attention. If your bees were in proper condition in the fall, and have wintered well, very little attention will be required. About May 10, examine each colony carefully, uniting queenless with weak colonies, and clip the queens' wings. When all are in safe condition, haul to your summer locations. An occasional examination from now on till white clover opens, brings you to swarming time and the honey season; and surely up to this time little enough work has been demanded. Probably double the number might have been attended to. Am I not right, Mr. France? Well, then, if we agree this far, let us see where we differ. You run for extracted honey while I run for comb honey, with every appliance for quick work during the season when most needed.

I will not attempt to rehearse my manner of securing comb honey, as I have sufficiently described it on page 285. The whole work consists of supplying each colony, as fast as needed, with sections prepared ready for use in the winter, controlling second swarms, and eventually removing the honey when the season has closed, usually with me the latter part of July. Three men will have ample time to give attention to any other matter requiring it in the apiary.

The honey in the body of the hive is left for the bees to winter on; and with the hive I use, my bees are necessarily left with sufficient good, well-ripened honey to carry them through to the next spring, and, if otherwise in proper condition, require no further care till that time, except cellaring. After the surplus has been removed, each hive is carefully examined, poor queens attended to, and every necessary step taken to get them all in proper condition for winter. A little later, each colony is weighed; and if any are found too light, combs are exchanged for heavier ones. Preparation is thus made a simple and easy matter. The conditions are far different when you run for extracted honey: you are continually in danger of extracting too closely, and your bees are always subject to more or less unfavorable conditions. For instance, you will frequently find, after removing all your surplus combs, that the body of the hive has been almost depleted of honey, and an overplus of bee-bread will be found in its place, and you will be obliged either to feed a great deal, or make a radical exchange of combs. Again, either I am entirely mistaken or it is a fact that bees, when run for comb honey, are less liable to dysentery, and winter better, on an average, than those run for extracted honey.

This is the reason why Mr. France and I differ in our answers: He reasons from the standpoint of extracted and I from the standpoint of comb-honey production. I am quite well satisfied that he is right in his views that three men could not properly manage 1000 colonies where run for extracted honey; but I am equally satisfied that they could if run for comb honey. As to which eventually pays the better, when each and every incident to each plan is carefully considered, must be left to the judgment of the individual, determined in a great measure by his location and frequently by his market.

GEO. GRIMM.

Jefferson, Wis.

Friend G., it looks possible, as you put it on paper; but I for one feel sure I should find myself, at least part of the time, cramped for more help. In my experience there are always unexpected things turning up. The weather, and other things that are almost beyond human power to foresee, upset plans and calculations so frequently that I have always found it easiest and most profitable to have an extra man, even if he can be profitably employed only part of the time. Another thing, when it comes to taking charge of 1000 colonies most men would find that the responsibilities and brainwork would be more than they could shoulder. My experience is just about like yours in contrasting comb honey with extracted; but I have generally tried to persuade myself that, if the extractor be properly used, it need not interfere with winter stores any more than the production of comb honey does. I should like to inquire if there are among our readers any who have ever managed 1000 colonies, with only two assistants; or has anybody managed successfully between 300 and 400 colonies, doing all the work himself—that is, where the bees are managed at an expense of not more than 300 days' work for the year? I presume it would be fair, of course, to hire help during the busy season, and then offset it by work done somewhere else at seasons of the year when bees do not need attention. In other words, how many days' work are required, per annum, for each 100 colonies a man keeps?

HOARHOUND AS A HONEY-PLANT.

GOOD NEWS FROM THE VERY CENTER OF THE HOARHOUND DISTRICT.

FRIEND ROOT:—Every time I see an account of the big prices of hoarhound honey (such as is mentioned in GLEANINGS of May 1), I feel anxious to get hold of some ardent would-be purchaser. Let me say, in the first place, that Santa Rosa is not in *Southern* California, as any one can see by the map; next, that I am acquainted, by name at least, with almost every prominent bee-man in the State, but I do not know Mr. Hoge or his apiary. But this I do know: that I can deliver almost any reasonable quantity of hoarhound honey at Hueneme or San Buenaventura for five cents a pound. Quite a number of years ago a sick man planted a little hoarhound for medicine (tea) in a little cañon in this (Ventura) county. Wind, water, and animals, especially sheep, have spread the seed over the country until now my bees have access to over 100 acres of hoarhound, miles away from the parent plants. It grows all the year, and produces honey all the year, though, of course, very much more in April, May, June, and July, than in other months. For quantity of honey and sureness of crop we have no other plant that is equal to it. For quality—the less said the better. It is strong; it is dark; it granulates quickly; it is bitter; and—though I raise tons of it I buy my honey from the sage districts where hoarhound has not yet obtained much of a foothold. I do not doubt its healthfulness or its medicinal virtues; but I can never sell my honey for first-class, on account of it. Probably three-fourths of my first and last extractings come from the hoarhound—the rest is mainly sage and wild alfalfa. Let me now caution those who may desire to plant it. How it may behave in another climate, I can not say; but here I have known it to be pulled and cut and plowed, and dug at for years, in a garden, and still it comes up. Left to itself, it covers the ground with a thick brush from one to three feet high, and chokes out almost every other plant. No animals eat it except sheep, and they are even worse than the hoarhound to have about you. The bees are now carrying in quite a lot of genuine hoarhound honey which I respectfully offer to all those who have paid 50 cts. and $1.00 a bottle, at $6.00 per case of 120 lbs., and I can confidently assure them that one case will be all they will probably desire.

C. M. DRAKE.

Springville, Ventura Co., Cal., May 14, 1888.

Friend D., you are a jewel. What makes you tell about the *bad* qualities of the things you sell, as well as the *good?* and why don't you put more stress on the value of hoarhound honey for coughs and colds? Can't you remember some astounding cures that have been produced by its use in your family or neighborhood? Please send us one case, and we will put it up in Muth's dime jars; and if we don't establish a trade in it we will give the bee-friends an opportunity of getting a sample in ordering goods of us. May be some will think more of its medical qualities than we do, and we may give you a big trade in it. I am frank to say, I do not believe that hoarhound has any special virtue in regard to coughs and colds; but it is a nice old legend, and what child does not like hoarhound candy? Since Mr. Hoge's name has come up so prominently, can any of our readers tell us where he is just now, if he is not in California?

THE BEE AND HONEY SHOW AT THE OHIO CENTENNIAL.

A FURTHER APPEAL FROM DR. MASON.

YES, friend Root, that is just the length, breadth, and height of my meaning, as you ask on page 342. At the time I wrote the article on page 341, only one besides yourself had made application for space in the Bee and Honey Department of the Centennial Exposition at Columbus. Something has stirred up four more. Perhaps it was what *I* said, and *perhaps* it was what *you* said. You see, I'm willing to divide the honors. But somebody or some*thing* will have to do more than has yet been done, or Ohio bee-keepers will not make the display of the products of the apiary, and of the progress there has been in the century in our specialty, that ought to be made. The applications have all come from the same county, and that is not the county that Columbus is in, either. What is the matter with the bee-keepers in the other counties of the State? It *does* seem to me that we ought to eclipse every thing of the kind that has ever been done on this continent, the Toronto exhibition not excepted. This year *their* premium list amounts to about $280, and the Ohio premiums amount to $406. I intend to have some straw hives, some log "gums," and some box hives with bees in, on exhibition, and I hope some others will do the same, and you and other supply-dealers can furnish the modern appliances.

The *Canadian Bee Journal*, in mentioning our Exposition, says: "Some of us will try to get there; but we expect to find an exhibit that knocks the Toronto exhibition into the shade. If it does not, it will not be the fault of Dr. Mason and A. I. Root, who are working hard to make it a grand success." I hope their expectations will be fully realized, and it seems to me that it ought not to be much of a trick for us Buckeyes to take the starch clear out of our Canuck neighbors in this display; and I should very much dislike to have them go to our exposition and not find an exhibit worthy of us as a State. Our premium list is large enough to pay the expenses of a large number of exhibitors, and every facility will be furnished them that it is possible to furnish, to enable each to make the finest display possible, with the least possible expense. There will be no more "red tape" used than is absolutely necessary to make things run smoothly, and no favor or privilege will be accorded one exhibitor that will not be shown each and every other; and if A. B. Mason makes an exhibit he will get just the same privileges that others have, and no more.

In the awarding of premiums, *no favoritism will be shown.* Competition for premiums is for producers only. Dealers will be furnished space to exhibit, but not be allowed to compete for premiums.

Friend Root, your suggestions on page 342 are all good, and I should be glad to have them all carried out. Your idea of "a garden of honey-plants in bloom on the grounds," I like very much; and if I lived within fifteen or twenty miles of Columbus you would have a chance to send on the plants and seeds; but I don't know of any one at or near Columbus who will carry out your suggestions. Can't you induce Prof. Devol or W. J. Green, or both, to take the matter in hand?

The next meeting of the N. A. B. K. S. will be held in Columbus, and will be an added inducement for bee-keepers to see us "spread" ourselves in a grand honey-show; but if we make a "fizzle" of it, whose fault will it be?

Now send on your applications, and ask all the questions you choose, and for any information you may wish, and I'll respond most heartily, to the best of my ability. Don't be afraid of annoying me, but wade right into this matter with all the vim you've got.

A. B. MASON.

P. S.—In a communication from W. Z. Hutchinson, received a few days since, he says: "Don't I wish I lived in Ohio, this year! How I should enjoy doing my level best in making that exposition a success!"

Mr. H. D. Cutting and other "furriners" write in the same strain; and it will be any thing but funny if we are not as much interested in the good name of our State as they are.

A. B. M.

Auburndale, Lucas Co., O., May 24, 1888.

Many thanks, Doctor. If the exhibit is not a success, it certainly will not be *your* fault. Just one individual has asked for seeds of the honey-plants, and that individual happens to be Dr. Mason himself. We have sent him the seeds, telling him there would be no charge, and we will furnish to any other person (man or woman) in the State of Ohio all the seeds they want to raise the plants from, to be taken to the Ohio Centennial for exhibition. We will also try to have some plants there of our own. Now, then, who will see to having the ground nicely prepared, ready to receive them? It needs a florist or expert market-gardener to get to work at it now, and have some soil so prepared that it will do honor to the State of Ohio. We are very glad indeed to hear the kind words from friends Hutchinson, Cutting, and other "furriners" as you term it.

SETTING OUT PLANTS.

HOW TO DO IT FAST AND EASY.

A man may lend his store of gold or silver ore;
But knowledge none can borrow, none can lend.

MR. EDITOR:—The above saying is only partially true, and I will now give to the readers of GLEANINGS some experience in setting out plants, by Capt. Charles Cary's method. Mr. Cary and myself live on adjoining lots in the suburbs of Titusville, and I often hear him telling some one how to set cabbage. He is so enthusiastic in it that I often have men say to me, aside, "That Cary 's an old crank, is he not?" Well, my work is to *groom* the iron horse at present, and I find that it is a *crank motion* that sends it along the track with speed. When plants of cabbage, and that family of cauliflower, Russia turnips, kohlrabi, also beets, are large enough to transplant, if there comes a shower, wait till the water has drained off and the ground is wet but not *muddy*. Then take your plants, lay them on the ground where you wish them to grow (you can drop them as you would corn), then with the corner of a hoe take a little earth and place on the root, pressing slightly with the back of the hoe. For a few days they will lie on the ground, but will soon root and hold up their heads, and there will be no more loss of plants than by taking more pains; and the advantage is great, especially at a busy time. A boy of fourteen or fifteen set out, without help, day before yesterday, over *one thousand* plants of cabbage.

In setting on a large scale, if the ground is furrowed out, as for corn, the plants could be set at the side of the furrow, and, with a small boy to drop, a man could set out thousands in a day. I used to raise vegetables for a living, and I know how a person's back feels after a day's work setting plants, and how the knees don't want to straighten out when you get out of bed in the morning, and I write this in the interest of those who have a "crick in the back," or, like Falstaff or Santa Claus, are men and women of unbounded *stomach*. I want every one who works a bit of ground to try this method this summer.

A year or two ago Mr. Cary hired a German to set out cabbage in *his way;* and as I was going out the next morning I met the German right at the patch. He said,

"Allen, go softly, or you might wake Cary's cabbage dot has gone off sleep already." In the fall the German was here again, and the cabbages were fine. I said, "Cary's cabbages woke up, did they not?"

"Laeshgang!" he said; "ya, dot is so, Allen."

Titusville, Pa., May 28, 1888. A. H. ALLEN.

Many thanks, friend A. Your communication may be worth hundreds of dollars to our readers, coming just in time as it does. I would suggest, that, where the ground is not marked out, as in field culture, you stretch a string, and tell the boy to lay the roots of the plants right under the string. Now throw your string off to one side, and cover as you direct. Unless you have tried it, and know, I should be afraid that for beets, turnips, and plants where we depend on the root, the result might be a crooked bottom. We once transplanted a lot of turnips by pressing the root into the ground with a dibble, and at harvest time we had a lot of deformities that were very funny, but not quite so salable.

THAT GLEANINGS PAPER.

MRS. CHADDOCK HAS FOUND GLEANINGS PAPER HANDY TO HAVE IN THE HOUSE.

I WONDER how many of the readers of GLEANINGS know what a cheap and handy thing that GLEANINGS paper is to have in the house. I have been using it to write all my manuscript on for two years, and I find it very satisfactory. I used to have considerable trouble about getting paper to write on. Common note paper I discarded long ago (I'd have been a pauper by this time if I had kept on using it), and I found a kind of linen paper that came in boxes, at 75 cts. a box, that was good strong paper; but when a word was scratched out it left so thin a place that the writing was apt to blot. Then, too, that linen paper was too expensive to throw away, and I did not use it till I had written every thing on old envelopes, the margins of newspapers, and backs of letters. The good thing about the linen paper was, that I could send ten sheets of it for a three-cent stamp. Since I have been using GLEANINGS paper I do not bother to write on scraps of waste paper, but do all my writing on fresh clean sheets; and if I spoil one I throw it away, as the cost is so little that it does not twinge my thrifty soul at all, and take a fresh one. At first the family sniffed at GLEANINGS paper, and would not use it; but when they ran out of all other kinds they were glad to try it, and now they use it for every thing, almost. The children fasten it together at one end and use it for scratch-books at school; they draw maps and pictures on it, and put on it what the regular examination papers will not hold. Minnie gives it out to her pupils just as freely as if she owned all the paper-mills in the United States, or was boss of the "paper-trust;" and we use it to put in the bottoms of pans when baking cakes; write all our letters on it, and—our poetry! and we can send ten sheets of it for a *two*-cent stamp. I like this GLEANINGS paper; and unless I find something that I like better, I shall use it always. When using paper in cake-tins, it is not necessary to cover the pans all over. In most cake-tins there is a brown burnt spot that is apt to burn before the cake is done. Cut a piece of paper a little larger than this spot; grease the pan, stick the paper fast, and pour in the dough. For a loaf cake, line the bottom all over.

Vermont, Ill. MAHALA B. CHADDOCK.

My good friend, it is a little consoling to my feelings to have you decide as I have done. We buy GLEANINGS paper by the carload, and get it ever so much cheaper than anybody can get small quantities of different kinds of paper at stores. It was one of my pet projects, a few years ago, to have no paper used for any purpose whatever, except GLEANINGS. All the clerks were to write on GLEANINGS paper; all the blank books for writing in were to be made of GLEANINGS paper, ruled and printed in our establishment; all the tablets and memorandum-books were to be made of GLEANINGS paper; all the women were to use it to put on their buttery shelves. But so many of them were against me I was obliged, sadly and reluctantly, to give it up. We do use it for a great many purposes, however. Thanks for your hints in regard to the matter.

CAN A BEE-KEEPER ACCOMPLISH MORE BY RESTING OCCASIONALLY?

ALSO SOMETHING IN FAVOR OF HAMMOCKS.

THE answers to Question 43 in GLEANINGS have given me courage to confess what otherwise I should never have dared reveal; namely, that from spring till fall a hammock is looped upon one side of our shop, ready at any moment to be swung into position for use. One of our oldest and best writers on domestic economy has recommended a lounge in every kitchen, affirming that ten minutes of level rest is worth thirty in an upright position. Minutes are so precious in the apiary during the busy season, that in resting as in working one should make the most of them. And we have proved, to our own satisfaction at least, that the hammock, instead of being a foolish luxury that no hard-working bee-keeper should indulge in, is a positive necessity. Through the days of spring and fall, our hammock hangs idly on the wall; but when the bees are swarming, and comb-building must be seen to, and sections taken off and put on, and the muscles begin to ache with the constant strain, and the head is dizzy with the noonday heat, in the cool shadows of the shop swings the hammock to give a few minutes of restful support from tired head to tired feet. I should like to recommend it to *all;* but let the sisters, at least, give it a trial and report.

Our bees have all, alas! passed safely through an unusually severe winter; but when I think of the long weary days to come, I remember also that we have a hammock, and take courage.

May 9, 1888. NELLY LINSWIK.

My good friend, your argument has caused me to change my opinion; in fact, I have had some experience since I gave an opinion on this matter of Question 43. Very likely, however, the effect depends greatly on the general health of the proprietor of the apiary. Where one is feeling perfectly well, he can, without much fatigue, or, perhaps, without much injury, work hard ten hours a day or even more. Terry, however, seriously questions whether anybody will gain in the long run by working more than ten hours a day. For almost a year past, I have been unable to get through with my work in the office without going over to the house once or twice a day, and stretching myself on the lounge. A great many times when I start for my resting-place I feel almost satisfied that my usual short nap can not *possibly* set me up in good working trim again *this time.* I am surprised to find, however, that almost, if not quite every time, after I have had a sleep of fifteen or twenty minutes, the faint and exhausted feeling has all gone, and I am ready to consider almost any thing, and be pleasant and good natured about it besides. Well, I have not thought to try a hammock. I have found out, however, that, to have the sleep come quickly, I need a certain amount of fresh air; and when real warm weather comes I think quite likely a hammock, in the open air, will fill the bill. Then Huber and all the rest will not have to walk on tiptoe, and whisper to one another, "Sh-h-h-h-h! papa is asleep." You see, our people are very kind to me when I am used up; and by having that hammock, say off under a tree out of the way, I shall be doing a kindness to *them;* and I should never have thought of it if you had not made the suggestion. I say, most emphatically, it *does* pay to rest *thoroughly* when you are used up.

HAIR-SNAKES.

HAIRS NEVER TURN TO SNAKES.

PROF. A. J. COOK:—The inclosed specimen of worm (I guess) was found in moist clay on the bank of a small tributary of the Allegheny River here in McKean Co., Pa. Even when first found, if laid where it was dry for a few minutes it became stiff and apparently dead; but if put in water or mud it soon began wriggling again. As it is, to us, both rare and curious, we send it to you, hoping to learn something more about it. The worm was found yesterday. By measuring as accurately as we conveniently could, we found it to be about six inches long.

Larabee, Pa., May 11, 1888. A. F. BEACH.

Prof. Cook replies:

The worm sent by A. F. Beach is one of the *Gordii*, or hair-worms, or hair-snakes. These are true worms, and so belong with the tape-worms, trichina, and, more distantly, with leeches and angleworms. Who of us has not heard how these come from horse-hairs which have fallen into some rain-water barrel or pool? Of course, we in these days of wider scientific training know better. We *know* that wheat does not turn to chess; that fire-weeds never grow unless there are seeds in the earth, and that no animal comes from a horse-hair, unless an egg had been previously glued to it.

These *Gordii* have a marvelous life-history. They lay their tiny eggs in water. These hatch, and enter some gnat larva, or maggot, and grow upon the substance of the wriggler. Then they pass into a fish, and lastly into some luckless grasshopper or cricket. I have seen our common cricket just full of the mature hair-worms. These unfortunate insects hop into some pool or vessel of water. Why, we know not, unless forsooth to quell the fever caused by the gnawing; or, mayhaps, tired of such a life, they are bent on suicide. However it may be, it is just what the worms need, for now they wriggle and tie themselves into all sorts of queer knots; hence the name, *Gordii*, from the Gordion knot which the great general untied. Here, too, they lay their eggs.

We often think of worms as very degraded creatures; but, as we see, they are very wonderful. I find my students often wild with enthusiasm in studying these worms. Tape-worms, for instance, are very simple, but curious as almost any animal we can mention. Every thing in nature is wonderful. "O Lord, how wonderful are all thy works! in wisdom hast thou made them all." A. J. COOK.

Agricultural College, Mich.

Thanks, friend Cook. But why did you not tell us something about the particular point that friend Beach alludes to—that these snakes, when dry, become apparently dead? I wonder if it is not hibernation. But when wet up they are all right again. How long will they hibernate if kept dry? Will somebody tell us about it?

BLACK, OR GERMAN BEES.

FRIEND DOOLITTLE HAS BEEN TESTING THE BEST STRAINS OF OUR NATIVE STOCK.

FOR years back we have been told about the great difference there was in the black, or German race of bees, as to color, disposition, etc., some claiming that there was a little black bee that was nearly worthless, while from the same race of bees there could be obtained a large brown bee that was equal, if not superior to the Italians. Others claimed that, if we would have the best, we must get the light gray bee, and still others were equally sure that the dark gray bee, of the same race, was far ahead of any other bee there was. Being anxious to have the best bees in the world, I have tried every and all kinds that have ever been brought to the U. S. except the Egyptians; and I wish to say that, all things considered, I prefer the Italians to any of the rest, believing that they combine more good qualities, and have fewer poor traits, than any other bees which have so far reached our shores. But I have wandered a little. Some four years ago I began to try all of these different strains of the black, or German bee, to see what there was in the different claims put forth for them, and how these bees, brown, gray, etc., differed from the bees kept by our fathers; and I must say, without desire to hurt anybody's feelings, that I can not detect the slightest difference in any of them, or between them and the bees I formerly kept before I became acquainted with the Italians; and this, after having queens from all the States where the claim has been made that a different strain of the black bee existed. The last tried was the large brown bee of Arkansas, which I got last August or September. As the queen came late, she did not lay any eggs after she came; and as the bees wintered in that splendid condition which Bro. Clarke feels disposed to call "hibernation," no young bees were reared till after they were set out of the cellar. To-day I have been looking at them, and carefully comparing their color, actions, etc., with the others, with the result spoken of above. In these examinations there was one thing that came under my notice which I wish to tell the readers of GLEANINGS about.

Having tired of those I had last fall, I changed their queens in October; and as they had not reared brood during the winter, less than one-fourth of the bees were young Italians in these cases, and about the same proportion of young black bees in the other case. When I opened the colonies where the young Italians were, they stood their ground on the combs, the same as all Italians will, while a little too much smoke or a little jar would set the black bees to running pellmell over these young yellow fellows, to such an extent as to nearly knock them off the comb; still they would run or stir only as they were carried with the multitude that was surging by. To tell it as it is, I had a feeling of pride come over me for the good behavior of these young fuzzy little chaps, which showed so much more steadfastness than their older companions.

Upon going to the colony where about one-fourth of the bees were young blacks, I found things just the reverse. Here the young bees would dodge about among the older Italians, run down to the bottom of the combs, and tumble off on the ground or into the hive, according to where the comb was held; and when I came to the queen she was so nervous and fidgetty that it was no pleasure to look at her; yet the older Italians stood their ground, never seeming to care how badly their younger sisters and mother were frightened.

The pleasure with which Italians are handled is alone quite a large item in their favor, which I had partly overlooked till I got these black bees. I am well aware that this trait makes it easier to get the combs free of bees while working for extracted honey, yet I could not think of tolerating this running nuisance in the black bees for the sake of getting them off the combs a little more easily. Before swarming time arrives I shall supersede this last black queen, and henceforth keep nothing but the Italians.

In only one thing do the black bees excel the Italians, according to my experience; that is, they will cap their combs a little whiter than any other race of bees with which I am acquainted; but they use much more wax in doing it, so that, while their combs look prettier, there is a loss in wax to nearly balance the looks. The claim that they enter the surplus apartment more easily than any of the yellow races has no weight with me, for, with my management, any of the races do not hesitate to go into the sections as soon as honey is to be had from the fields in sufficient quantities for practical work there. G. M. DOOLITTLE.

Borodino, N. Y., May 15, 1888.

I am very glad, friend D., that you have taken this matter in hand, and made a practical test. Whenever these brown, or German bees, have been extolled, I have had a sort of feeling that, if carefully tested, they would not prove much different from our common bees, although I have never had the time nor inclination to make the test. Just as soon as I received those first Italians from father Langstroth, and saw how civil and peaceable they were, I made up my mind that I never wanted any more of the crazy-acting blacks. You have narrated, more vividly than I could possibly have done it, the difference in behavior; and I agree with you, that this one thing alone, providing the Italians had no other merit, would be a sufficient recommendation to induce me to adopt them. I have been pleased in the same way with the Light Brahma fowls. I can pick them up and set them down, and do what I please with them, and they do not act scared out of their wits, and raise the whole neighborhood by their squalling.

AN INTERESTING LETTER FROM SOUTHERN FLORIDA.

A LAND FLOWING WITH MILK AND HONEY; TRULY THE ELDORADO OF THE SOUTH.

THE short item in GLEANINGS of March 1st, "Encouraging for Florida," on page 178, brought us so many letters of inquiry that it would be a task to answer all. It has been suggested by one of the inquirers that an article be written, giving more information concerning this part of Florida, for GLEANINGS, which I will do as briefly as I know how.

NOT EXCESSIVELY HOT.

Some have asked, "Don't you find the summers excessively warm so far South?" I think it can be truthfully said, the summer season is more pleasant here than at the North. When out of doors in summer, the heat of the sun is felt perhaps more than there; but men work at all times of day in summer, and do not complain any more of heat than at the North, and it is always comfortable in the shade. A neighbor of ours said their thermometer hanging in the hall never went above 94° last summer.

THE FRUITS AND FAT OF THE LAND; STRAWBERRIES FOR SIX MONTHS.

It is asked by another, "What do you find to live on?" We can have strawberries six months in the year; blackberries in their season; figs, bananas, pine-apples, guavas, which is one of the best of fruits, and can be used in all the ways we use apples and peaches. They grow on bushes, and do not require any special care after planting out, as do oranges; grapes, too, are grown here; also wild grapes are plentiful in their season. It is thought peaches will do well here, and are being tried. A few persons have had them to bear. Pears, also, are being tried. A great variety of fruits can be grown very successfully here. Sweet potatoes, and Irish, all have; also cabbage, tomatoes, lettuce, onions, egg-plant, okra, watermelons, sugar-cane, rice, pumpkins, squashes, and peanuts. Poultry can be raised the year around. Chickens and eggs bring good prices. We can have fresh milk and butter, and many things which I have not time to mention; but, remember, it is by grubbing and digging and cultivating and harvesting that we have the good things of this land. Those who like to hunt can find deer, turkey, rabbits, squirrels, and quails; but deer and turkey are very shy and hard to get. We live half a mile from the Caloosahatchee River, and from that and the many creeks can be taken fish, which are plentiful and good.

SHIPPING FACILITIES NOT THE BEST.

Some ask, "Can you ship your honey anywhere to sell without having transportation charges eat it all up?" To ship by rail through Florida would leave the shipper no large profits; but to ship to New Orleans via gulf and thence northward, it is probable that fair profits may be realized. Vessels for New Orleans touch at different points on the coast; and if the $25,000 is appropriated that is asked of Congress to make our river safe for navigation, we shall then be able to connect with those steamers of the gulf.

ORANGE-GROWING.

Another asks, "Does it take long for an orange-grove to come into bearing?" We think it not the best plan to depend on oranges alone, but a variety of fruits, which can be raised between the oranges. I don't know about the profits of orange-raising. It takes from seven to ten years for them to come into bearing.

SNAKES, MOSQUITOES, ETC., NOT TROUBLESOME.

There are not many large poisonous snakes. There are some, but not often seen. Mosquitoes are not very troublesome here, but on the coast they are. Fleas will be plentiful if encouraged by having hogs and dogs around; but we are troubled very little by either. We are not much troubled with flies, and we have a very few. Mosquitoes are worst in the rainy season, which begins the first of June and lasts till September—not a long drizzling rain, but a lively thunder-shower, generally in the afternoon, and then all is bright until the next afternoon.

THE TIMBER; DRINKING-WATER.

The land is not rolling. The timber is principally pitch-pine, cypress, cabbage-palmetto, etc.

Drinking-water is caught in cisterns; and if the tank is put in a shady place, good water may be had all the year, and, in the rainy season, have it fresh every day.

COST OF HOUSES AND LAND.

Dwelling-houses cost about the same as in some parts of the North, and they can be made vermin and insect proof by using screens in doors and windows. We are more free from serious diseases than at the North. Those who come here afflicted with lung trouble or catarrh will find this climate a help, as we know from experience. Our lands, some of them, are good, and some parts will yield fairly with fertilizer, which can be had at a reasonable price. Unimproved river-front land is from 10 to 25 dollars per acre. It costs from 15 to 25 dollars to hire land cleared. Improved land, river front, can be had at from $25 and more per acre, and will grow any thing that will grow in this climate.

FLOWERS AND GREEN LAWNS THE YEAR ROUND.

Bees can be bought reasonably here at this time. To the ladies, I would say here you can have flowers blooming all the year outdoors. Our lawns are bright with beautiful flowers, and our verandahs are adorned with climbing roses, honeysuckles, or some of the many other climbers we have here. It is delightful to know, when we plant, we can have things grow without trouble of protection from frost; but sometimes we do have frost that kills very tender flowers and vegetation.

HOW TO GET HERE.

Those wishing to reach this country can get tickets to Punta Gorda. There take the steamer for Myers, which is 25 miles by water and 18 by land; then come up the river with the mail-carrier, or perhaps find a boat coming up. We have no hotel. Board can be had at from $2.50 to $4.00 per week.

A SCHOOL AND A CHURCH.

At Alva is a schoolhouse, where there is preaching twice a month by the Methodists, and a public school. There are not many people here, but those we have are good neighbors and citizens.

I will close by hoping I have truthfully represented all that I have written about, and that some good people will find it agreeable to come and live among us, for we are anxious for more neighbors. Ours is a newly formed county, and named Lee. Myers is the county-seat. MRS. DAVID HADLEY.

Alva, Fla., Apr. 4, 1888.

My good friend Mrs. H., we are indebted to you for your very careful report in regard to Florida; but I am inclined to think that *you* would find it pleasant almost anywhere. I judge so from the tone of your writing. Well, now, it is a sad fact that there are some people who will complain, no matter where you put them. If they go to Florida, they come back in disgust, and sometimes live their lives out in the same way. It is a grand thing to have the resources of every part of our United States fully developed and brought out; but it is a grander thing to find things to be thankful for, and *pleasant neighbors*, wherever we happen to be.

THE HONEY EXHIBIT AT THE TRI-STATE FAIR.

DR. MASON TELLS US ABOUT IT, AND OUR ARTIST SHOWS US HOW IT LOOKED.

Friend Root:—You ask me to give a description of the picture of the exhibit of honey at the Tri-State Fair, Toledo, last September. The most important part of the exhibit, of course, is the exhibitors, four of whom sit in a row in the foreground as if they were waiting for "somefin." The one on the left is my son Ellis, whom you saw here four or five years ago. The one to his left is Mr. A. M. Gander, of Adrian, Mich.; and if you don't know that the next one is "our mutual friend" W. Z. Hutchinson, I'm sure I'll not tell you. The one on the right, perhaps you will not recognize; and for fear you may not, I will simply suggest that it is intended to represent "yours truly."

The exhibit of comb honey in crates on the shelves at the left, a portion of which is hidden by what is in front, is the product of the apiary of a bee-keeper and fruit-raiser who is over 80 years old, Mr. L. Eastwood, of Waterville, O., who has contributed something toward a display for seven or eight years.

The large pyramid at the left is Mr. Hutchinson's exhibit of comb and extracted honey. To the left of the pyramid stands his book-case, filled with bee-literature; and to the left of that, an observatory hive with bees in it. In front of this sits a crate of comb honey, with three of Root's painted, lettered, and varnished tin pails, filled with honey, belonging to my son. On the floor to the right of the pyramid are samples of comb and extracted honey, entered for best quality by Mr. Hutchinson. The pyramid is decorated with beeswax hearts, strung on a blue ribbon. He took enough premiums to pay all expenses, and fair pay for his time.

On the shelves, beginning just where the left side of Mr. H.'s pyramids hides the view, and extending along the shelves as far as the comb honey shows, was Mr. Gander's exhibit of comb and extracted honey. About half of this exhibit is hidden by the pyramid. This scarcely seems possible by looking at the picture; but when I tell you that twelve or fifteen bee-keepers could sit behind the shelves and eat their picnic dinner, and that the shelves are about seven feet high, it shows a different face; but such is the fact.

Mr. Gander's exhibit did not show to as good advantage as it would had not the pyramid been in the way; but that did not lessen his chances of getting premiums, of which he took all to which he was entitled. He is an expert in raising fine comb and extracted honey, and has a knack of displaying every thing to the best advantage.

Just beyond and above Mr. H.'s head, and to the right of the Vandervort mill, by looking closely you may see a glass pyramid of extracted honey, about three and a half feet high, and sixteen inches square at the bottom. The pyramid of shelves at the right is four feet square, and about four feet high, loaded down with extracted honey. On top of this pyramid is a glass show-case in which is comb honey. At the right, where the shelf seems to end, is a right angle; and the shelving extends back about ten feet, nearly to the wall, just leaving a narrow passageway by which to get behind the shelves to rest, sleep, visit, or eat.

Commencing at the right of Mr. Gander's exhibit, and extending around the corner, on the shelves toward the wall, is extracted honey, which, with the pyramids of extracted honey in front, constitutes the exhibits of my son and myself. On the right-hand corner of the platform stands, as you see, a Given press, with an observatory hive sitting on it; and in front are displayed some queens. The honey-extractors, hives, bees, etc., were to the right of the honey-exhibit, and are not shown.

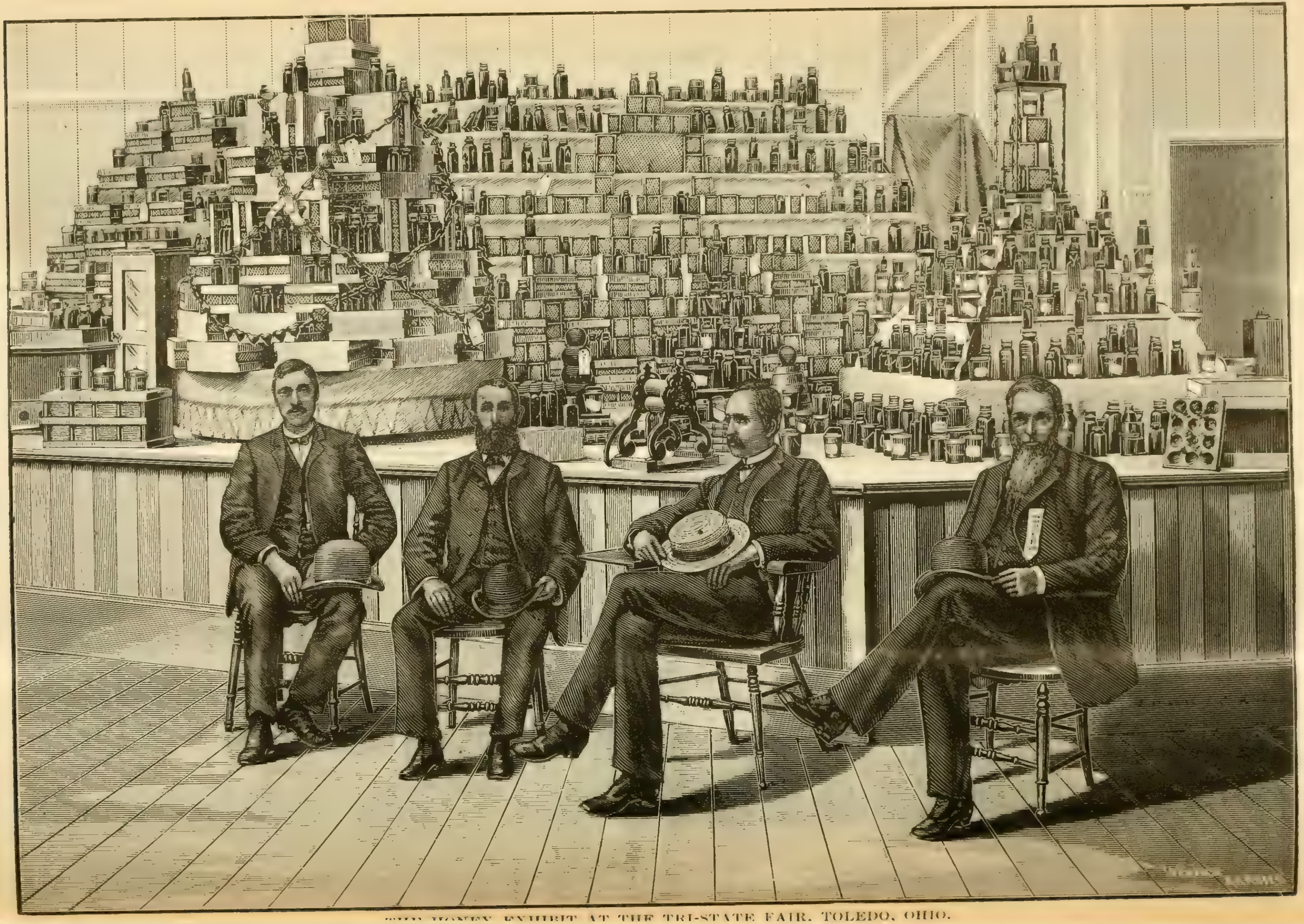
Taken all together, it was a fine display—equal, if not exceeding, in attractiveness any honey-show I ever saw. We have been exceedingly fortunate in getting judges. Messrs. Thos. G. Newman, H. R. Boardman, and H. H. Overmyer, were the judges the first year; and Mr. Newman, Mr. C. F. Muth, and the Hon. Mr. Cotton, did the judging the second year. For the last four years, Mr. H. D. Cutting has been our judge, and we are thorough converts to the system of judging by experts.

In all these six years, not a single exhibitor has expressed dissatisfaction with the awards. This will seem all the more singular when it is known that I have all the time been superintendent of the department, and one of the largest exhibitors, and selected the judges. More than once have I taken more in premiums than all other exhibitors combined. As superintendent, I have never granted A. B. Mason any privilege not equally accorded every other exhibitor, and our judges have been as true as steel.

These exhibits have been a center of attraction, and a spot around which bee-keepers have congregated, and visited and become acquainted.

Auburndale, O. **A. B. Mason.**

Friend Mason, the above report, together with the picture, gives us pleasure in a good many ways. Especially are we glad to know that this matter of awarding premiums can be so managed as to have every thing pleasant and harmonious. In the same way, there seems to be a good spirit among the exhibitors at these tri-state fairs. I remember one year, that, when friends Vandervort and Pelham were both exhibiting their foundation-mills, as a matter of course each one took pains to mention and hold up prominently the good features of his machine. Well, it is rather tiresome for one to stay right in the same spot two or three days and talk right over about the same thing; therefore friend Vandervort, when he wished to go over the grounds for a little recreation, would say to his rival and competitor, Mr. Pelham, "Look here, friend P., there isn't any use of both of us sticking right here to these mills all the time. I want to run around; and while I am gone, I want to ask you to show people



THE HONEY EXHIBIT AT THE TRI-STATE FAIR, TOLEDO, OHIO.

my mill, and answer questions. If you can make them believe yours is best, all right, and no hard feelings." Just think of it, friends—a rival manufacturer taking charge of a rival's wares and merchandise, and doing his best to make sales for said rival! I am acquainted with both of the gentlemen, and I believe they honestly fulfill the scripture text, "Look not every man on his own things, but every man also upon the things of others." I do not know how many sales of foundation-mills were made; but I do know that these two brothers worked right along, side by side, in a brotherly way; and my experience has been that our fairs and conventions afford the best means in the world for having rivals in business get acquainted, and show a brotherly spirit toward each other. And now, brother Mason, I appeal to you if every thing I have said is not true. You may perhaps remember the circumstance as above stated. It certainly is greatly to the credit of both friends Vandervort and Pelham. They are both rival manufacturers of foundation-mills to us; but it affords us pleasure to speak a good word for the gentlemen, just the same.

NOTES FROM MY QUIET NOOK.

A LETTER FROM OUR FRIEND ANNA HERSELF.

Our lives are songs; God writes the words,
And we set them to music at pleasure;
And the song grows glad or sweet or sad,
As we choose to fashion the measure.

I DO not think I was ever more surprised than when I found that my friend Mrs. Chaddock had taken the liberty of introducing me to the editor and readers of GLEANINGS. She had not given me the least intimation of her intention; and therefore the deed was done, and I knew nothing of it until I received the magazine containing the article. Then, when she had the audacity to have my private letter published, I was struck with consternation; but she immediately confessed her naughtiness (she *knew* I would have to forgive her), and has promised to be on her good behavior in the future—on *certain conditions* which I fear will involve your welfare.

Through the kindness of Mrs. C. I have had the privilege of reading many copies of GLEANINGS, and have enjoyed them very much indeed.

The very kind words of Mr. Root to me, and the pleasant messages I have received from several of the readers of GLEANINGS, are greatly appreciated. One little letter that has come to me from the other side of the world, from a missionary in Northern China, is *particularly precious*. It contained some Chinese curiosities which I may describe at another time, if you think they would be of any interest.

If my GLEANINGS friends could call on me they would find I am not "a myth," but a reality; for notwithstanding the fact that I spend all my days on my back, and am very helpless in most respects, I am still *very much alive*. I try to keep up with the news of the day, and am fully as much interested in what is going on in the world as any of those around me; for *that* is next best to being able to go out in the world. And though there are days when I am unable to see callers, when I *can* see them I like to have them ignore my invalidism as much as possible. I have often thought it would be an excellent thing if a law could be passed, prohibiting a certain useless but very common fashion among mortals; namely, the wholesale detailing and comparing of their aches and pains, and all the ills that flesh is heir to. It certainly does not improve their condition, and I firmly believe it is injurious; for it is most assuredly an *unhealthy* subject.

Among the many helpful sayings of Charles Kingsley, I have found one which I think particularly appropriate and helpful for every day in the year; and thinking it may prove helpful to some one else, I will pass it on: "Do to-day's duty, fight to-day's temptation; do not weaken and distract yourself by looking forward to things you can not see, and could not understand if you saw them." People are so prone to borrow trouble, and wear themselves out in trying to shoulder a cargo of imaginary trials, that they frequently overlook the duties of to-day with the many blessings that are strewn along their pathway. The more we try to forget ourselves and our little worries and trials, the more happiness will be ours. God has given each one of us some work to do in this beautiful world; and though it may be distasteful to us, and not at all what we would have chosen for ourselves, still, if we trust him, and take up our work cheerfully, we shall find peace and happiness.

"Daily living seemeth weary
To the one who never works;
Duty always seemeth dreary
To the one who duty shirks.

Only after hardest striving
Cometh sweet and perfect rest.
Life is found to be worth living
To the one who does his best."

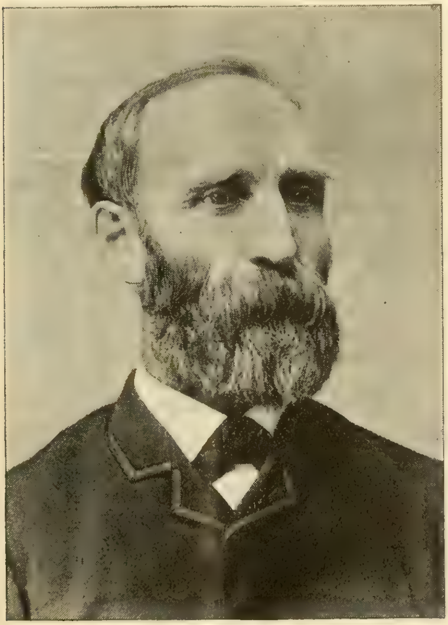
Ipava, Ill., May 4, 1888. ANNA B. QUILLIN.

Many thanks, friend Anna, for the excellent points you make in regard to talking about our aches and pains. The thought is more refreshing because it comes from one who has suffered so much. You make me feel ashamed of myself already. I have often thought that this matter of talking about our aches and pains and feelings was a sort of disease itself. It mostly afflicts idle people. When one has not any thing else to do, Satan is apt to tempt him to fall into a habit of watching and scrutinizing every little pain and ache and indisposition; whereas a busy person, especially if he is busy working for his fellows, will push ahead, ignoring these little twinges, until he actually forgets he has them. And I do believe that the shortest road, many times, to getting rid of aches and pains is to push ahead in the general business of the world, and to ignore their presence. I have many times imagined that I was sick; but on taking a look outdoors, and finding how much I was needed to get the team started, and the men at work, by the time I had been rushing around here and there for an hour I was astonished to find myself not only well but happy, without any aches or pains worth speaking about. I have often told you that a bee-sting pains you a great deal more if you think about it and talk about it; and I am sure it is so with a great many other things. You hit it exactly, my good friend, when you say they are "unhealthy" subjects. May the kind Father sustain you, friend Anna, and may the thought of your cheerfulness amid trials we know little of make us brave and strong. I assure you that more than one reader of GLEANINGS will mentally thank you for your hopeful words, and, I trust, breathe a prayer that God may give you grace and strength to bear your lot in life.

LYMAN C. ROOT.

BIOGRAPHICAL SKETCH BY P. H. ELWOOD.

THE subject of this sketch needs no introduction to the readers of GLEANINGS. For more than a score of years he has been a prominent bee-keeper before the country, and his wide personal acquaintance, his extensive correspondence, and his numerous published writings have brought him to the knowledge of every wide-awake bee-keeper who reads the English language. To be thus widely known and recognized as the worthy successor of the late Moses Quinby ought to be a source of gratification to Mr. Root, and, in a measure, should repay him for the sacrifice he has made in carrying on the unfinished work of that pioneer bee-keeper.



LYMAN C. ROOT.

Lyman C. Root was born in St. Lawrence Co., N. Y., Dec. 19, 1840. The better part of his education was obtained in "brush college;" but before entering this he had two terms in the academy, two in St. Lawrence University, and a course in Eastman's Business College, where he graduated in 1865. The eight years following he was with Mr. Quinby, for the last five years his partner. It was his privilege to have been associated with him during what may be called the transition period of modern bee-keeping; during the time of the most rapid changes from box to frame hives; the time of the dissemination of the Italian bee, the introduction of the honey-extractor, the invention of the Quinby bee-smoker, the adoption of the one-comb section, and the perfecting of the new Quinby frame and hive. The various experiments that ended in the adoption of comb foundation were then in progress, and Mr. Quinby could have had no young man with him more enthusiastic and more helpful than the energetic L. C. Root, who released him from business cares, and gave him the needed leisure for study and invention. These were golden days for Mr. Quinby, well improved; and for Mr. Root nothing less, as he recalls the important results obtained. Their supply-business rapidly grew to large proportions, and it was common for them to buy from three to five hundred colonies in box hives in the spring, transfer them to the new hive, and sell them to their customers in the different States. This necessitated a large amount of exhausting work; but at this time Mr. Root knew nothing of sparing himself, and often did in one day what the average man would have taken two days for accomplishing.

In 1873 it was discovered that a rest was needed, and in the fall of that year he retired from the partnership and removed to Mohawk. But it seems impossible for a man of his temperament to rest, and we shortly find him extending his bee-business, going out in the early morning with his assistants to a bee-yard half a dozen miles away, and returning late at night with from two to three or more thousand pounds of extracted honey—the same process to be repeated the next day.

After the death of Mr. Quinby, Mr. Root took his supply-business. To all of this must be added his literary work as regular contributor to the *American Agriculturist* and the *Country Gentleman*, with frequent articles to all of the bee-journals of the country; his presidency of the North American Bee-Society, and of the Northeastern Association, with his long and laborious exertions in establishing the latter, and finally his re-writing Mr. Quinby's book—a task on which he expended a greater amount of careful conscientious work, and which caused him greater anxiety, than though it had been entirely his own. For this last work Mr. Root was peculiarly fitted by his long residence with Mr. Quinby, and knowledge of his methods; and he has performed his task so well that there is to-day no better manual of practical bee-keeping in the English language.

In keeping bees Mr. Root has preferred to raise extracted honey, and to keep about forty colonies in a yard. His crop was usually as much per yard as his neighbors' who kept twice the number in a place. The most of this excess was due to skillful manipulations, improved honey-gatherers, and wise selection of locations; but after subtracting all these there probably remains something to be credited to moderate-sized yards. One fall he put into the cellar at the Hildreth yard forty stocks, took the same out in the spring without the loss of a single colony, and produced from them 9727 lbs. of extracted honey, 4103 lbs. of which was gathered in just seven days. Is better evidence needed that the author of the "New Bee-Keeping" is a practical bee-keeper?

Mr. Root takes an active part in every good work in the community in which he lives, and he is ready to make any possible sacrifice in working to elevate humanity. He takes great interest in temperance work, and has been an active member of the Good Templars since 1865. My first knowledge of Mr. Root came from his making a ten-mile trip and back after dark, over almost impassable roads, to our little village, for the purpose of organizing a Good Templar lodge. Mr. Quinby and himself were two of those who voted the first Prohibition ticket in St. Johnsville (why don't they change that name?) and he has been an active supporter of that party ever since.

In 1869 he was married to Mr. Quinby's only daughter, and his home is one in which intelligence, refinement, and happiness reside. I never met any one who appreciates his home, family, and friends, more than does Mr. Root. His wife has been a true helpmate to him; and in the re-writing of Mr. Quinby's book she took a prominent part in the composition of the same—a service she had also rendered her father in his last revision. Mrs. Root has had entire charge of the education of their two daughters, the elder of whom has just passed from the home instruction into the high school, while the younger will take another year to graduate in the home course.

There are very few men who have had the large and varied experience with bees such as has fallen to the lot of Mr. Root. I suppose all such could be counted upon the fingers of one hand, for there is no branch of bee culture, either theoretical or practical, with which he is not familiar. He has been an extensive producer of both comb and extracted honey; is thoroughly familiar with the details of a large supply-business, including the purchasing of bees in box hives, and transferring and Italianizing the same; the rearing and shipping of queens, together with a large experimental knowledge and a large experience as writer and author. For the past year he has resided at the sea-shore, and, his numerous friends will be glad to learn, with health much improved; and we all unite in wishing that he may be spared to the bee-keeping fraternity for many years. P. H. Elwood.

Starkville, N. Y.

Many thanks, friend E. I was somewhat acquainted with some of the facts you mention, and I heartily indorse what you say about the book, "Quinby's New Bee-keeping." Many other writers have written in regard to bees; but I think no other author has ever been so much of a practical honey-producer himself as father Quinby and his energetic, go-ahead son-in-law, the subject of our sketch. Mr. Langstroth never produced any very large crops of honey, if I am correct. It did not seem to be quite his forte. Neither has Prof. Cook, nor has your humble servant. We are, however, thinking of raising a crop of honey this present season. Well, for the practical bee-keeper the writings of Quinby and L. C. Root are of the greatest value. These writers did or do practice, year after year, what they preach, after a fashion which none of the rest of us seem to have been able; that is, to prove the truthfulness of our teachings by tons of honey. It is true, that we here at the Home of the Honey-Bees have built up a large business in selling queens and bees, and this makes this feature of our book valuable. Prof. Cook, from his position, gives us scientific facts in regard to the honey bee that no other writer does, and so with the other authors. There seems to be plenty of room, and no need of conflicting, and little or no repetition. I never really understood and appreciated friend L. C. Root until I became acquainted with him at the bee-keepers' convention at Albany, N. Y. At the close of the first day's session the idea began to impress itself very strongly on my mind that it was a national misfortune that many of the great minds of the present day are not acquainted with *each other*. For instance, when I noticed how very much alike in spirit were L. C. Root, Prof. Cook, Dr. Miller, Dr. Mason, and others whom I might mention, I felt bad to think that they could not all be present and get acquainted with each other. I hope the gentlemen will excuse the liberty I have taken; but I feel sure it will do no harm.

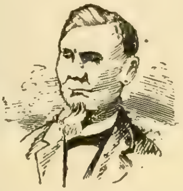
Some years ago I wrote to Prof. Cook that he absolutely *must* get acquainted with Dr. C. C. Miller; and I wrote Dr. Miller the same thing. It was not very long after, that these two men became such a pair of brothers at all our conventions that it was a subject of remark. I felt gratified to think that my convictions were right; and the fact has been impressing itself upon me for a long while, that our leading men can not afford *not to know* each other. In this matter of temperance alone, which our good friend Elwood has alluded to, suppose York State is struggling against the evil. L. C. Root takes in the condition of affairs, and perhaps at times feels almost weighed down with needs and responsibilities, especially when he takes a look at the young men pushing into manhood in the State of New York. Prof. Cook feels the same thing in regard to the State of Michigan; Dr. Mason in Ohio, Dr. Miller in Illinois. Suppose these four get together and learn to know each other, shake hands all round, and talk over matters; why, this very thing of itself doubles their mental and physical strength to stand up and fight against the evil. I will tell you what I should like to see—a little prayer-meeting with these four men present. All the rest of the world might come too if they wished, and I assure you they would be welcome. But four just such men, with Christ Jesus in all their hearts—yes, with Christ Jesus in their midst, who can tell what a power they might be for good? Now, I presume every State in the Union can furnish such a man. It would be very sad indeed if it could not furnish just one. But you know I am speaking particularly of bee-men, and I shouldn't wonder a bit if that is to be one of the good things that come from these illustrated biographical sketches. They help good men to know each other. For my part I thank God from the bottom of my heart that he has given me the privilege of assisting in making good men acquainted; therefore, dear friends, I take pleasure in showing to you here our good friend to whom we are all deeply indebted — L. C. Root; and I don't want to have you forget our other good friend, Mr. P. H. Elwood, who has been so kind as to give us this biographical sketch.

A RAMBLE.

GETTING OUT AND KNOCKING OFF THE CORNERS.

IT has always been something of a passion with me to see noted men. There is something about such men to admire and to bring out elevated thoughts. Then, again, I get sick if I continue too long at the drudgery of the bee-yard, and a drive of a few miles and a visit with a kindred spirit has a wonderful toning-up effect.

I was permeated and surrounded with the above feelings when it occurred to me that I had one of our bee-men of some note within twenty miles of my apiary; and, fixing things for an absence of a few days, my black pony and I were on our way to the residence of Mr. Thos. Pierce, of Gansevoort, Saratoga Co., N. Y., President of the Eastern N. Y. Bee-keepers' Association. He is a retired merchant of means, and producer of "A No. 1" comb honey. Mr. Pierce's portrait was in the *Albany Journal* during the united gathering of bee-keepers last winter, a copy of which is reproduced here.



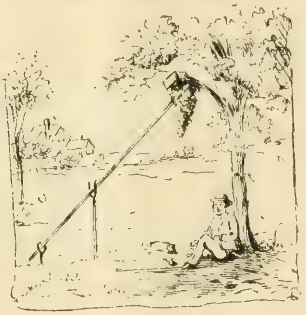
PRESIDENT PIERCE.

August 3d found me knocking for admittance to his mansion on the main street of the thriving railroad town of Gansevoort. I found him busy packing a hive and fixtures to ship to France.

He has about 100 swarms of bees in as neat and clean an apiary as you will find in many days' drive. His hives are not of the regular Langstroth model, the frames being deeper. The apiary is nearly surrounded with buildings. A commodious shop is on the west side, with steam-engine, planer, and all tools for bee-hive work. A small, convenient honey-house is on the north, and a horse-barn near by has to receive a considerable overflow in the shape of hives and frames.

I found him a very methodical man in his work. The hives were neatly arranged in rows, with wide avenues between, in which a common scythe could be used to keep the grass closely shaven. Each hive had an ample shade-board, with wide cleats nailed edgewise to the under side, and so spaced as to rest on the hive, preventing the retaining of moisture. The shade-boards are held down with two bricks on each board. Mr. P. demonstrated to my satisfaction that bricks could be handled easier, and looked more useful, than an irregular boulder. I tried to impress him with the fact that a boulder is more in accordance with the poetical roundness so much admired in nature, and that both Bros. Heddon and Doolittle used a little pile of them on every one of their hives. But my friend has got beyond the poetical age, and is firmly wedded to his bricks.

Mr. P. raises comb honey, and indulges in that old-time luxury of natural swarming; and I will here venture to say, that his swarming-tools are more complete and serviceable than you will find in any other apiary in the country. Several swarming-boxes are attached to poles of various lengths. If a swarm commences to alight in an elevated position, the long-pole box is brought out. A strong iron hook, with a prong to it, is driven into the ground where the lower end of the pole will come. A forked rod about three feet long is also stuck into the ground at such a distance from the base as to hold the swarming-box up to the cluster. The apiarist can sit composedly under the tree, with folded hands and complacent smile, and view the speedy harvesting of the swarm.



PIERCE'S METHOD OF HIVING SWARMS.

Mr. P. is a warm advocate of the Bingham smoker; and to start it up quick he uses alcohol for a stimulant internally (in the smoker, not in himself). I strenuously advocated kerosene, but Mr. P.'s olfactory organ has a distaste for kerosene, and he has a pocket-book that can pay for the extra cost. But the great mass of us poor bee-men find a little kerosene in a common oil-can answers all purposes.

I also noticed several buckets of water near the apiary, in which were cork stools for the bees to alight on for water. As the apiary was a considerable distance from a stream, these buckets were well patronized, and had to be filled often.

The bees in this apiary are wintered in a deep and roomy cellar under a store. The soil is sand, and the cellar is dry. Outside the bee-room is a small anteroom in which is a coal-stove. This stove is provided with a sheet-iron hood, communicating with the bee-cellar. In very cold weather a stream of hot air is thrown into this cellar. Ventilators also connect with the chimney, and a complete change of air is thus effected. This cellar is about five rods from the R. & S. R. R., where a great amount of traffic passes at all hours of the day and night. In the winter the ground shakes so as to rattle windows; still the bees in this cellar always come out in excellent condition, with but slight loss.

In his house I found *his queen* presiding with as much neatness and precision as *good* queens of the house always exercise. Mr. and Mrs. P. have traveled much, and attended various conventions of bee-keepers, and have some fine groups of the assembled wisdom of the conventions. According to previous arrangement, I put up for the night with my friend, and in company with him made a very instructive tour through Saratoga County, which I will describe in my next. A RAMBLER.

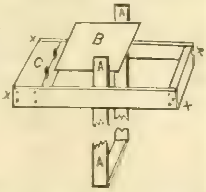
Look here, old friend, if you can ramble to such a purpose as you have this time, we hope you will keep on. The sight of President Pierce's face, even before I got hold of your article, revived a host of pleasant recollections at that bee-convention, and made me in just exactly the mood to want to know where he lives, how he fixes his bee-hives, and all about his surroundings. Tell friend P. that I think I should be with him on the brick question, only I prefer Concord grapevines to any sort of shade-board. I am very glad to know that somebody is making intelligent use of swarm-boxes on poles of different lengths. The rigging for holding the pole and box right up in the cluster is tiptop. I used to try to stick the pole in the ground, so it would stand; but when the swarm got on the end of it, it would always tip over and make trouble. I agree with you, friend, R., in substituting kerosene for that other article of commerce. Don't let us have the smell of it around anywhere, where it might tempt any one who has once had a taste for it. Your cork stools are also a good suggestion. This spring we have been keeping barrels of water right beside our beds of celery-plants, in order that we may dampen them often when the sun is hot. Well. the bees seem determined to drink out of our water-barrels; and so many get drowned that the boys have already been trying the many different kinds of floats.

A NEW FOUNDATION FASTENER.

GOING BACK TO THE OLD PLAN OF MELTING WAX.

THE fastener described herein is the most perfect machine I have ever used for the purpose. It is far superior to any press, and is away ahead of any other system of melted-wax fastening that I know of. It works easily and rapidly, is perfectly accurate, and costs but a trifle to make.

Its construction is made plain by the accompanying illustration.



MILLER'S FASTENER.

The frame, X X X X, supports the swinging frame, A A. which caries the iron plate B. This plate is kept hot by means of a common kerosene lamp having a "Leader" burner. The lamp is so placed that the top of the chimney is about 5 inches below the iron. The wide piece C, of the frame X X, is for the section to rest on, two small pieces of iron or tin being nailed to the back of it, to prevent the section from sliding too near the plate.

The plate B is inserted in saw-cuts made near the top of the swinging frame, and is fastened in place by a couple of wire nails. The plate is made of light-weight sheet iron.

The top of the front edge is beveled with a file, and rubbed smooth with emery cloth. The under side of the front edge is *slightly* rounded and polished.

To adjust the machine for use, place it on a table or rack having a hole through it as large as the inside of frame X X, and fasten it securely. The shelf beneath the table for the lamp to rest on should be adjusted in *front* of the swinging frame A, so that the frame will just touch its edge when hanging plumb. Adjust a "stop" beneath the table and *back* of the frame A, at such a distance from it that, when it is pushed back, the front edge of the iron, B, will be just at the middle of a top-bar of a section placed on C.

The frame A, after being pushed by the foot, returns to its perpendicular position by means of a piece of rubber band attached to it and to the lamp-shelf.

To fasten the foundation on a section, place the section on the block C, snug against the two little "stops;" hold the foundation about where wanted, and with your foot push the bottom of the frame A from you as far as it will go. This will bring the hot iron plate B forward until its front edge is just at the middle of the top of section (which is now bottom up on C), and at the same time strike the edge of the foundation, melting it; immediately remove your foot and let the iron fly back. At the instant the iron leaves the top bar of section, give a slight downward pressure to the foundation.

On picking up the section, the foundation will be found to be securely fastened, exactly in the middle of the top-bar. By allowing the thumb and first finger of each hand to encircle the sides of the section when holding the foundation, it will be found easier to manipulate it.

Do not use copper for the plate B, as there is something about melted wax that acts upon it, turning the wax green. **ARTHUR C. MILLER.**

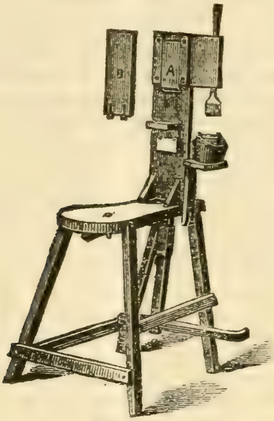
Drownville, R. I., Mar. 23, 1888.

Friend M., your arrangement is quite ingenious; but it is a good deal after the fashion of one exhibited first at the Michigan State Convention at Saginaw, and afterward at the convention in Utica, N. Y., only with your machine the hot plate is operated by the foot, leaving both hands free to manipulate the sections. I was so much pleased with the way the operator worked it at the last convention, that I paid $5.00 for the machine; but our folks put it away with the other relics in a very few hours. The first objection was, that it was much slower than even the Parker machine. The second was that the whole apparatus got so hot in the course of an hour or two that things melted before we got ready for them to melt. Has your machine been used right straight along for a day at a time? I like the way the foundation hangs when put in by these machines, and it also holds so substantially that you may tear off pieces of it without loosening it in any way.

SECTIONS.

A DEFENSE OF THE FOUR-PIECE.

I AM much surprised that so few of those who reply to the queries in GLEANINGS should prefer the four-piece dovetailed section (see Q. No. 27). Again, recently the editor of the *American Bee Journal* said that the four-piece section had become obsolete. Such is not the fact. I can point out to Mr. Newman men who produce from ten tons of honey upward, who use nothing else. In fact, Vermont producers, as a rule, prefer them. Mr. Muth says, "The four-piece sections are of the primitive order," and gives, as his reason, that "the fact of their being dovetailed makes them too limber." This is the very ground on which the most of us who prefer the four-piece, condemn the V-groove. Let those of the fraternity who are undecided, or prefer the V-groove, send to almost any of our Vermont supply-men and get a sample; or, better still, a thousand of our poplar four-piece sections, and test them impartially. They are fully as accurate, more substantial, and whiter, and better every way, *according to my notion*, than the V-groove. I can put together two thousand per day of them, and glue every joint, with a boy to supply me with the pieces and pack away the sections. When dry they are very solid; in fact, they will sometimes break before the joints will give. To put them together I have a machine like the illustration below. I made mine in a day, from this same picture, as I had never seen one of the machines.



DOVETAIL-SECTION GLUER.

Our Vermont poplar is, I think, the variety which Mr. Root describes as the "quaking aspen." The wood is very white, and is less liable to swell and shrink than basswood. Then it is not so liable to brown when exposed to the light, or when it becomes damp. Friend R., have you ever tried the Vermont sections enough to know their good points? This matter of sections is certainly of practical value; and if the one-piece are really superior to the four-piece dovetailed, I do not want to keep on using the four-piece. Let us hear from Mr. Green in regard to this matter. He prefers the V-groove.

Query.—Shall I make the change from the four-piece dovetail section to the one piece V-groove? Who will help me to solve it?

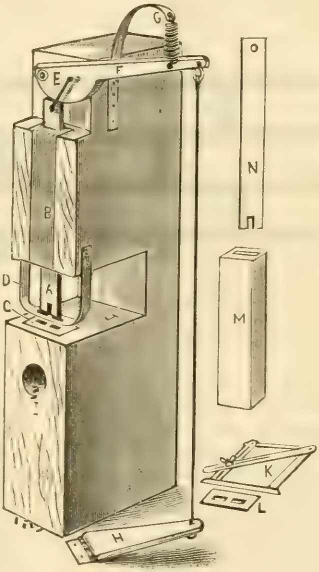
Larrabee's Pt., Vt. JOHN H. LARRABEE.

Friend L., if you can put together 2000 a day, and glue every joint, and that without help, you have certainly got hold of a very good thing. I agree with all you say in regard to the sections made of white poplar; but they can not well be made of one piece, on account of the peculiar nature of the lumber. I presume the majority of bee-keepers would put together five one-piece sections where they could put together and glue even one of your kind. But I do not mean by the above that one individual can put together 10,000 in a day. We once had such a machine as you describe; but melted glue, with us, always made dauby work. You have become accustomed to the four-piece glued section, and I certainly would not make a change to the one-piece until testing the matter on a small scale. If I am correct, the machine you illustrate was formerly made by our good friend A. E. Manum. We have reproduced the engraving from a print sent us by friend L.

A HOME-MADE MACHINE FOR MAKING PERFORATED ZINC.

FRIEND REESE'S CONTRIBUTION.

THE accompanying cut you have had made from a rough drawing of my home-made perforating machine is so very good that a further description seems hardly necessary; but I will mention a few of the details that will greatly assist any one who may desire to copy or improve on the plan. The size of the hard-wood block will be governed somewhat by the width of sheets one would wish to perforate. If for full-size honey-boards, the block should be from 4 to 6 inches thick and 16 inches wide. Saw out the jaw J, about 2½ inches, and 10 inches in. You can then perforate a sheet 16 inches wide by reversing the sides.

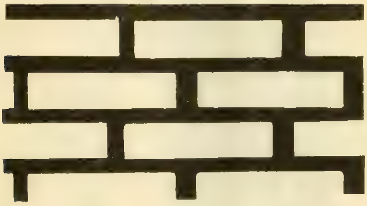


REESE'S ZINC-PERFORATING MACHINE.

The punch A or N is a flat bar of steel about $\frac{3}{16}$ to ¼ inch thick, 1⅝ inches wide, and 10 inches long. The sheath, or box, B or M, is molded of babbitt metal around the steel bar, or punch, N, in the usual way. By painting the bar N, and running the hot metal around it while the paint is fresh, and the paint wiped off after molding, it will make a nice fit. This box, M, need not be so heavy as the drawing indicates, as there is very little strain upon it.

The lever, F, is made of hickory, ¾ in. thick, and the under side of the half-circle is shod with a strip of hoop iron, to make a solid bearing against the top of punch A; and the face of the block where the lag screw E fastens the lever F on to it is partly covered with a thin sheet or plate of iron to prevent the lag screw E from getting loose, as this is where the heavy strain comes.

To make and adjust the steel die L requires some nice work and patience, as the punch A must fit the die L very accurately to do nice work. It may be more easily made of a thin steel plate ⅛ inch thick, 1 inch wide, and 3½ inches long, filed with beveled edges so it will fit firm when let in the table top, and a countersunk screw-hole in each end to keep it in place. To make the oblong holes in the die L, I use a Morse twist-drill bit, 17/100 inch in size; draw a straight line lengthwise through the center of the plate L, then drill the holes along the line, file out the spaces, and square up the corners. The die should be let in a hard-wood board 16 to 18 inches wide, and 24 inches long; also the parallel guide K should be attached to this board, and the whole thing adjusted under the punch A, and screwed fast to the jaw J. The loop, or shoe, D, made of hoop iron, plays an important part, as it frees the punch from the zinc, and leaves it clear to be moved forward under the punch. The width of the lines between the perforations may be regulated by the guide K, to as wide or narrow, as any one may desire. The size and shape of the perforations may be varied according to each one's ideas or fancy as to what they think right. The engraving below shows a sample of the zinc made on the machine.



The spring C, foot-pedal H, hole I, and short piece of stiff wire connecting the punch and lever, are all so vivid in the cut that any one will understand at a glance.

This seems an opportune time to mention that I have been experimenting with a variety of all-metal honey-boards set in wood frames with a half bee-space on both sides, and perforated so as to embrace the break-joint principle; that is, one or more rows of perforations to come over the center of each top-bar of the brood-frames, and the space between the row or rows of perforations left solid zinc. I claim this method will obviate the expense of wood slats, as I can undoubtedly make this board so it will not sag in the center.

JOHN S. REESE.

Winchester, Ky., May 1, 1888.

Friend R., I am sure we owe you a vote of thanks for telling us how simply such a machine may be constructed. Your guide for the bar A is exceedingly ingenious. I think, however, I would have a different arrangement where the lever E acts with the plunger. It makes a good deal of friction by crowding the bar A so much to one side. If, however, the press is so arranged that, when the metal is to be cut, your toggle-joint, as such arrangements are called, at E, is almost straightened out, it may perhaps work with great power, and with but little friction. I am inclined to think it would take quite a mechanic to make such a machine work nicely. But many of our best bee-men are mechanics, and we shall therefore have considerable home-made perforated zinc.

QUEEN-EXCLUDING HONEY-BOARDS.

HOW TO MAKE THEM; FURTHER SUGGESTIONS ON THE WOOD-BOUND HONEY-BOARD.

IN running over a lot of matter the other day, awaiting insertion, we ran across the following article. You will see that it is dated Jan. 16. While we have been studying on this honey-board for the past year or so, friend Reese has been working on the same problem for at least half of that time, and probably longer. We will say to some of our readers, that we do not claim that the honey-board which we illustrated in our last issue was an invention —simply a combination of old principles. Such honey-boards as we illustrated (at any rate not differing in important features) we made as much as a year and a half ago; but for various reasons during that time we did not see fit to give it to the public. These latter remarks are not made for the benefit of friend Reese, but for the information of one of our correspondents who seems to think we appropriated the idea from an article of his in the last issue.

Editor Gleanings:—

By far the best and cheapest way to make a queen-excluding honey-board is by making a wooden rim or frame just the size of the top of your hive, thickness of frame to be governed by the bee-space each one may desire, as well as the style of hive used, corners of frame halved, or Simplicity style, like Mr. Root's 5-cent rim illustrated in his catalogue, page 22. I use, on my square-joint hive, a frame ⅜ inch thick, which gives me ½ bee-space above and below the zinc, which fits into a narrow saw-kerf put half way through the wooden frame from the inside, and is nailed securely with small wire nails which pass through the wood and zinc. You will understand there are no wood slats or narrow strips of zinc (they are fussy, expensive, and unnecessary) about this board, but a single sheet of zinc such as Mr. Root advertises on page 23 of his catalogue, except it is cut the proper size to fit in the wood frame. The zinc can be put in so it will not sag, by laying a piece of thin board under the zinc to keep it on a level with the saw-kerf in the frame; and when nailing the zinc into the frame, press the two sides together slightly as you nail, and the zinc will always be as tight as a drumhead. The zinc may also be nailed on the outside (top or bottom) of the frame in the same manner, instead of in the saw-kerf, which will give the full bee-space on one side only.

Now, the great advantage of this solid zinc honey-board over the slats and strips is, that they can be thoroughly cleansed very rapidly of all propolis, wax, etc., and is much more rapidly and cheaply made than the slatted board. A good way to clean the board is to lay the zinc on a smooth surface, and scrape it off with an old case or butcher knife, or one of Mr. Root's ten-cent honey-knives. The 5-inch saw I use for making the narrow kerfs in the wood frame is made of heavy tin, and stands up to the work on my foot-power saw wonderfully. Do not let some one try to persuade you that this zinc honey-board will be too *cold* or too *warm*, as, when the weather is warm enough for surplus honey, the bees will take care of the temperature inside the hive, provided they have a proper entrance and a shade-board in very warm weather.

Winchester, Ky., Jan. 16, 1888. J. S. REESE.

Friend R., you have given us a good point. Those metal honey-boards will certainly clean and scrape off better than the wood-zinc board.

A LETTER FROM FRIEND GALLUP ONCE MORE.

HE IS STILL ENTHUSIASTIC ABOUT CALIFORNIA.

EDITOR GLEANINGS:—I am receiving quite a number of inquiries about bee-keeping, etc., in California, and they ask if it is a fact that the law prevents keeping bees in the valleys. The city council of Los Angeles passed an ordinance imposing a fine of $500 for keeping bees in the city limits. Within two weeks after the passage of said ordinance a swarm was discovered in the tower of the court-house, two swarms in Temple Block, two in the U. S. Hotel. The fact is, there are probably 200 or 300 swarms in the city limits today. They locate in chimneys, cornices, casings, cliffs, or trees, in squirrel-holes, in churches, stores, etc. They are perfectly at home in this climate. Now we see them clustered on trees, bunches of weeds, etc. They are independent of human laws and ordinances. Yet do not suppose that they are a nuisance, except at fruit-ripening, when they eat up lots of ripe fruit.

We have had abundance of rain, and the growth of vegetation and wild flowers is immense, so the bee-keepers are expecting a large harvest this season. Swarming is in full blast in most of the apiaries; still, the higher one is located up on the mountains, the later the swarming commences. Our highest mountains are now covered with snow. It is a novel sight to eastern people. Here in the valleys we have the golden orange in all its beauty, the trees loaded with ripe fruit and blossoms, contrasted against the dark green of the foliage. The whole atmosphere in the vicinity of the orchards is filled with rich perfume, and almost perpetual snow right in sight. The dark beautiful green of the foot-hills, and the dense growth of vegetation in the entire valley, is seen, and yet in midsummer all this is changed outside of the tilled or settled portion of the country. I wish all to understand that no one can form a correct opinion of this country, its prospects, capabilities, etc., until he has been here at least one year; and I know of no one who has resided here one year who has any desire to live east of the Rockies; still, every one must see for himself. All can not see with my eyes. No one can possibly form any correct idea of this rich country's development within the next five or ten years. It has been immense for the past five years; and the more it is known, with its incomparable climate, the more people will come here to make it their home. Come and see for yourselves. Do not take my word for any thing.

Santa Ana, Cal., April 12, 1888. E. GALLUP.

Well, old friend, have you, too, been hibernating all this time? or is the beautiful climate of California so enticing that you do not have time to write for the bee-journals? I expect to visit my brothers, near San Diego, next October or November; and if you are not too far away I may try to hunt you up.

WATER FOR BEES DURING SHIPMENT.

FRIEND FLANAGAN REVIVES AN IMPORTANT MATTER.

ANY one who has ever bought bees that have had to be packed and sent any considerable distance, especially if the weather was hot, or the colonies strong, has noticed with what avidity the little fellows lapped up the water that some considerate one has sprinkled over them; and on opening the hive a quick observer would at once remark the total absence of all uncapped larvæ, and, in many cases, the destruction of the capped but immature brood, resulting in quite a loss to the receiver. Many old hands at shipping, place a sponge, saturated with water, others a common sack or cloth, on the top of the hive, wet with water; but these methods are imperfect, except for very short distances, as the outside of the sponge or cloth soon dries out, and the moisture is not accessible to the bees. The cloth or sack also obstructs ventilation, which is a very important item in hot weather. Some have tried tin tubes filled with water; but none, so far as my knowledge extends, have been practical for long distances. Now, I have hit on a plan that to me is an excellent one, and has been attended with most excellent results. It is simply to take an empty comb, or, if the colony or colonies to be shipped are very strong, two of them, and fill them with water as Dr. C. C. Miller and others do with syrup when they want to feed their bees. But if you do not know how that is I will tell you how I do it. I take a tub, or vessel large enough to hold the comb in a horizontal position. Take a common sprinkling-pot; fill it with water, and hold it three or four feet above the comb. In a moment the comb on one side will be filled. Turn it over and fill the other side. Give it a little shake, to throw off the water that may adhere on the outside, then place it in the shipping-case or hive, on the outside of the frames of brood and honey (one on each outside if two combs are used, which is the best plan, if the colony is a very strong one). Fasten as you do the other frames, and you will have no trouble by the bees sucking dry the immature larvæ, or suffering from thirst. You will find it profitable as well as humane to do so, as the one receiving the bees will at once see the difference in the strength of the colony and its superior condition, for it will, if not too roughly handled, continue to breed as if at home.

The one who sends his bees so they will arrive at their destination in the best possible condition will get the greatest number of orders, and do the largest business, other things being equal. This method is simple, practical, and is not a theory by any means. Only yesterday I received a letter from a party living in the northwestern part of Manitoba, Canada, who had tried to get other parties to send bees and insure their safe delivery, but failed to do so, no one being willing to run the risk. He writes: "The bees were delayed eight days, and I was sure they would all be dead; but what was my surprise and gratification to find them all alive and in excellent condition, and not over three-fourths of a teacupful of dead bees, that died of old age."

If the last lines should look too much like an advertisement, cut them off, and fix it to suit yourself. E. T. FLANAGAN.

Belleville, Ill., May 10, 1888.

Friend F., we do not care how much it looks like an advertisement, so long as you prefer to communicate it to others, rather than to keep it all to yourself. The idea was given some years ago in some of our bee-journals, and you just now remind me of it. It is a shame that such things should be so quickly overlooked and forgotten. But why do you mention putting the comb inside of a tub to fill the cells with water? Is water so scarce at Belleville that you can not afford to lay the comb on the grass while you give it a shower bath? When honey is coming in rapidly, so that both combs and bees are dripping with thin nectar, we have not found it necessary to put any water in the combs at all. But during such drouths as we have had for two years back, it certainly would not be only humane, but profitable to the shipper, to give his bees a good heavy comb of water. If I mistake not, a good-sized perfect comb will hold pretty nearly a quart, if it is properly put in.

HEADS OF GRAIN

FROM DIFFERENT FIELDS.

A LOCATION FOR AN APIARY SOUTH.

MR. EADY asks to know something about the best locality to start an apiary. Though I do not suppose that this place could compete with either of the places that he mentions, still the large amount of unoccupied field, coupled with the nearness to large and growing towns, made up largely of mechanics and workingmen, who are, I think, the best consumers, gives this section some advantages.

For my own information I have kept a record of bee-pasturage as the season advanced, and the list by itself will tell a good deal.

Feb. 1, cat-tails and red maple; Feb. 10, elm; Feb. 25, wild plum; Mar. 10, peach-bloom; Mar. 15, red-bud, or judas-tree; Apr. 1, apple-blossoms and wild haws; Apr. 15, black gum and white clover; Apr. 22, rattan and poplar.

From the last date until July, the flow is constant, or, at least, was last year. In succession we have basswood, sourwood, and chestnut, lasting pretty well up to August 1st. Last year the fall flowers yielded no nectar; but that may have been on account of the year, which was a very poor one. The fields were covered with asters and goldenrod, but I saw no bees on either. For miles around here the uncleared creek bottoms are jungles of rattan, and the bees fairly roar over the branches for three weeks. The foot-hills are full of sourwood, and the mountain coves have quite a fair sprinkling of basswood. Every ridge is a chestnut orchard. The low meadows are full of white clover, but I have never seen the bees on it. Perhaps the continued flow of honey from the larger growth draws them away from the ground. The winter problem resolves itself into a question of stores, as bees fly all winter except on cold rainy days. H. R. TALCOTT.

East Lake, Ala., May 6, 1888.

HOW TO GET WHITE BASSWOOD FOR SECTIONS.

In your experience with basswood, if piled ordinarily out of doors, does the rain affect the color? To gain the whitest wood from selections in the forest, what has been your experience in keeping it so at the least expense? E. R. NEWCOMB.

Pleasant Valley, N. Y., May 6, 1888.

Friend Newcomb, after basswood has been sawed into plank it must be so protected as not to get wet. Water will be sure to color it and consequently spoil it for sections. Use only winter-cut basswood, and have the logs cut into plank before the bark peels; otherwise the white lumber will be colored. Our green plank we have cut as above mentioned, and piled up outdoors with inch strips between each layer of plank, and each plank 2 inches from its neighbor. After the planks have been piled up as far as we care to have them they are covered with old cull pine boards. The dry basswood lumber which we buy by the carload is placed directly into a shed, and not stuck up.

WHY NOT LOOK FOR MONEY WHERE YOU LOSE IT?

I had a swarm of bees robbed, and I said to myself, "Why not look for money where you lose it?" I then sent an order for one-half pound of bees to A. I. Root, and put them in said hive. They have done finely, and now I feel I found my money where I lost it. Why melt up the comb when your bees are robbed? Just buy a pound or half a pound of bees and a queen; put them on the empty comb, and the bees can go immediately to filling the empty combs. Do you consider it wrong to hive a swarm of bees on the Sabbath? E. W. PETTYS.

Windsor, Broome Co., N. Y.

There is no doubt about it, friend P. It is an excellent plan to stock hives where the bees have died, by putting in a queen and half a pound of bees. I do not know that I ever knew it to fail, especially when they are put in during May and June. If you can get the bees and queen of somebody near you who has hives with frames like your own, I would give them, for a start, a comb of brood also. In reference to your last question, see Our Neighbors, issue for May 1.

WHAT TO DO IN CASE OF SPRING DWINDLING.

I received the A B C book in due time. I will say that I am well pleased with it. I think it is a very excellent book in every particular, on the management of bees. I find in the book that my bees have spring dwindling. I have four hives that might, with proper treatment, be redeemed. As I am a beginner, I thought best to ask your advice. In the first place, they are out of food, and have been for some time. I have been feeding them syrup of white sugar, but they keep dwindling in numbers. But there is quite a considerable amount of bees in each hive yet. I. S. WILKINS.

Havana, Huron Co., O., April 2, 1888.

We can not give you much better advice on the matter of spring dwindling than is to be found in the A B C book, under the head of "Diseases of Bees," and under "Wintering." The best remedy is prevention. During later years, when bees have been packed in chaff hives and on summer stands, or carefully housed in the best approved methods in the cellar, we have not heard so much of the trouble. Bees should have ample protection; and when this is provided they are not as apt to dwindle in the spring. In your case I should see that the bees have sufficient food. I should also contract the brood-nest and take out the frames, they can not conveniently cover, and give them a good chaff packing around and above the brood-nest. If the clusters are very small I would unite them with the other stronger colony.

MAKING A DOUBLE WALLED HIVE OUT OF A SINGLE-WALLED HIVE.

There is no doubt, I suppose, that bees winter much better in a double-walled hive than in a single hive. The difference, it seems to me, is about as a family living in a house that is not plastered or ceiled. I am using the 10-frame Gallup hive. By using 9 frames made with 1⅜ end-bars I can hang my frames in, close them up together, put a division-board at each end, and wedge them up on the frames, and I have a complete double wall, and my frames all straight and equally divided. Please give your opinion of this idea. W. H. RITTER.

Springfield, Mo., April 16, 1888.

The plan you speak of, of taking out one or more frames and putting on each side of the brood-nest a chaff division-board, has been practiced a good many years past; and while the chaff on each side of the brood-nest is better than the single-walled hive alone, it by no means is as good as the regular chaff-hive; but in your locality I should think it would do about as well. See "Division-boards," also "Wintering," in A B C.

WHAT CONSTITUTES A "STANDARD" FRAME?

I shall be obliged if you will answer the following: One is often advised, in bee-publications, to adopt some one of the "standard" frames. 1. Which are the standard frames? 2. What has made them such? L. O. QUIGLEY.

Goshen, N. Y., Jan. 9, 1888.

Friend Q., we do not quite see why you ask the questions in the way you do. Our price list gives diagrams and dimensions of the frames mostly in use. Almost every neighborhood furnishes more or less people who have been thoughtless enough to start bee-keeping with a frame of their own—perhaps different in size from that which anybody else has ever used. When they begin to buy or sell bees or hives, then trouble comes. One of our neighbors did this very thing; but when he had an order for a large lot of bees, which he could not fill unless they were transferred into standard frames, it cost him more than one hundred dollars to do the transferring; whereas, had he started in the first place with the standard L. frame that is used, I should say, by more than three-fourths of the bee-keepers of the U. S., he would have saved all this expense. In regard to your second question, the fact I have just given is what made them standard; that is, because the world is already started with frames of *exact* dimensions.

HIVING SWARMS IN NEW HIVES ON OLD STANDS OR ON EMPTY FRAMES—WHICH?

Would it be advisable to hive the new swarm in a Simplicity hive, with seven wired frames of fdn., and one wide frame of sections to fill out the brood-chamber with slatted wood-zinc honey-board, and all the sections taken from the old colony and put on the new swarm, the new hive to be set in place of the old colony, all the bees that can be spared from the old colony to be shaken from the combs in front of new swarm, leaving only enough to care for the brood, and setting the old colony aside as of no further use for comb honey that season? Or would it be better to put five or six empty frames with foundation starters in new hive, with one or two frames of brood from the old colony, and wide frame of sections to fill out the brood-chamber? Would I get as much comb honey from the new swarm, treated in this way, as from the old colony and swarm together? Or is there a better way of working for comb honey? JOHN MAJOR.

Cokeville, Pa., Mar. 12, 1888.

Friend M., your question is too complicated to admit of a decided answer one way or the other; but as nearly as I can get at it, I don't think there would be very much difference between the methods you give. I think you will get more honey by letting the old swarm and the new one both store. But the season must be taken into consideration somewhat, I presume.

HEMP AS A HONEY-PLANT.

Friend Root:—Among all of the bee-literature, I have never noticed any thing about hemp and its bloom. As the planting season is just at hand, I would state that, last season, we had about a score or so of hemp stalks growing close to the house. A number of them grew as high as the porch ceiling, which was twelve feet, with expansive branches. During a number of weeks, early every morning and continuing until the middle of the day, these hemp stalks would resound with the hum of bees. It was like the hum of a flying swarm. Every twig had one bee or more. Whether it was honey or pollen or both, I know not. It lasted for weeks, and the busy bee had a time of it on the hemp. Here I have the bees among half a dozen apple-trees, with half an acre to cultivate. All around next the fence I intend to plant hemp. Anywhere that a seed is dropped and a chance given, it will grow and flourish. J. CADWALLADER.

North Vernon, Ind., Apr. 7, 1888.

Friend C., one of our neighbors, years ago, sowed a piece of hemp expressly for his bees; and although it grew ten or twelve feet high, and was covered with bloom, not a bee deigned to give it even a passing notice. He felt a good deal disgusted until one day, after a little shower, imagine his surprise to see that piece of hemp just roaring and booming with bees. I believe he thought they gathered pollen only from it; but perhaps he was mistaken. As hemp has a market value, both in the seeds and in the stalks, we can afford to raise it as a honey-plant—that is, if it yields any honey. Who can tell us more about it? Have we a bee-man located anywhere near large fields of hemp? There surely must be quite extensive fields of it to supply the seed for commerce and the fiber for rope.

MILLER'S FEEDER, AND HOW HE LIKES IT AFTER HAVING TRIED IT.

Friend Ernest:—After making a very thorough trial of the feeder I described in GLEANINGS (I fed 2800 lbs. of sugar with it), and after making all allowance for my prejudice in its favor, I *think* if you try it you will like it better than butter-dishes.

Of course, I don't insist on this, for you might spend all your time trying the pet notions of others. Prof. Cook thinks it the best feeder he ever saw; but then, he—*never tried it*. C. C. MILLER.

Marengo, McHenry Co., Ill., April 18, 1888.

I am very glad, friend M., that you like the feeder so well. I have no doubt that it is better than the ordinary butter-dishes where large quantities are fed at a time. I mentioned the butter-dishes because of their being so extremely cheap—costing practically nothing. For feeding small quantities—a pint a day, to stimulate brood-rearing, I believe they are about as good as any thing one could have; but if we desire to feed up for wintering, I prefer a large tea-kettle feeder; and perhaps if I could try the feeder which you described some time ago in GLEANINGS, I should like it better than the tea-kettle. In feeding up for wintering, when desirable to give the colonies their winter's rations as cheaply and as rapidly as possible, it is much cheaper to give the syrup to them all at once than to be giving it to them in little dribs at a time in small feeders. As to whether the bees could ripen that syrup fed to them all at once as well as they could an equal quantity fed to them in small doses at a time, I am not positively sure about. But last winter we tried feeding both ways; and this spring we can not detect any difference between those fed at once and those fed slowly.

CLAMP WINTERING.

Could you kindly give the numbers of GLEANINGS containing references to clamps and earth-houses during 1885 and 1887 (I have the numbers complete for 1886)? WM. STOKES.

Balnastraid, Scotland, March 24, 1888.

In regard to special numbers containing items in regard to clamp wintering, we would say that, in looking back over our index, we find that but little was written on the subject. There are several reasons for this. First, because the apiarist never knows the condition of his colonies after they are buried until he opens them in the spring. Again, it is difficult to keep it dry. Furthermore, bee-keepers generally have to lose pretty severely by clamp wintering for a year or two before they succeed in bringing their colonies through safely. The only thing that we can say in its favor is its cheapness. When we consider the liability to lose, however, it will not be so cheap after all. The only item which would be of any service to you for 1887 you will find in the Sept. 15th issue of GLEANINGS from the pen of W. Z. Hutchinson, page 705. In 1888 a valuable article on the subject was contributed by G. M. Doolittle in the Feb. 15th issue. As you are a subscriber, you have doubtless received and read it. Mr. L. C. Root, of Stamford, Conn., and P. H. Elwood, of Starkville, N. Y., both use clamp wintering. For particulars in regard to it we would refer you to Quinby's New Bee-keeping, by Mr. L. C. Root. The price of this book is $1.50 postpaid. For further information in regard to clamps in the A B C book, see "Special Repositories for Wintering."

THE KLIMITZ QUEEN-CATCHER.

Is Klimitz's queen-catcher and introducing-cage the best one you have for catching the queens from swarms, if you wanted to catch the queens in your second swarms, and return the swarm to the parent hive? I. L. NANCE.

Cato, Crawford Co., Kan., May 7, 1888.

The queen-catchers are designed to catch queens on combs. The plug is removed, and the large end of the cage is set directly over the queen, care being taken that the legs and other portions of her body are not caught between the cage and comb. As soon as she finds herself confined she will run up into the cage. If a queen's wings are clipped, and she is found running on a bare spot of ground after the swarm has issued, the catcher will be just the thing to secure her, if the bee-keeper is an amateur, and feels a little hesitancy about taking up his beauteous queen by the silken wings. The queen-catcher will not answer to take queens from a cluster of bees, as you seem to think. If you desire to catch the queen when she starts to issue with a swarm, use the Alley trap, frequent mention of which has been made in these columns.

WHAT TO DO WITH PARTLY FILLED SECTIONS OF CANDIED HONEY.

I have a few hundred 1-lb. sections partly filled with comb and honey. Some of the honey is candied down in the sections. Will the candied honey hurt the sale of them, if I put the supers on the hive and finish filling them? J. L. QUEEN.

Albaton, Iowa, April 29, 1888.

Yes, the candied honey in the comb will injure its sale; that is, it will either not sell at all, or else it will be sold for several cents less per pound. Such honey is usually of very slow sale, and dealers do not like to purchase it. The best way to dispose of such combs with partly candied honey is to place them in the solar wax-extractor. The wax will float on the top, and harden. Below this will be a stratum of nice clean honey. Such combs can also be used for feeding back—that is, for stimulating brood-rearing, or where colonies need stores. Those partly filled sections which have no candied honey in can be placed in the super, and completed; but such comb honey is not really first-class. If you can dispose of it in the first place among your neighbors and friends, at a low figure, we would advise you to do so.

COON'S SOLAR WAX-EXTRACTOR.

1. How about the solar wax-extractor, described by O. E. Coon, in GLEANINGS, 1885, July 1, page 457? Will it work all right?

2. Will it do any harm to paint bottom-boards on the inside? C. S. WALKER.

Grafton, Vt., Apr. 29, 1888.

The solar wax-extractor described by O. E. Coon will work all right, we have no doubt. It is quite similar in construction to the one we have already tried in our apiary. We think, however, that only one thickness of glass is necessary. Friend Coon uses one, two, or three, according to circumstances. We can get all the heat we want in melting wax with one glass, in our locality. We are not sure that the extra sheets of glass are of any advantage in increasing the heat. We once tried two sheets of glass, and then a third; but we could detect no difference by the thermometer placed inside.—It will do no harm to paint the bottom-boards of the hives. In fact, as you may know, all our bottom-boards are painted, in order that they may be used interchangeably as covers or bottoms. If the bottom-board is permanent, we do not see any particular advantage in doing it. If a hive has been previously affected by foul brood, painting it inside might make it less liable to transmit the disease to the colony which it contained. But a far better and surer way is to boil hives by immersing them in a bath of scalding-hot water.

OUR QUESTION-BOX,

With Replies from our best Authorities on Bees.

All queries sent in for this department should be briefly stated, and free from any possible ambiguity. The question or questions should be written upon a separate slip of paper, and marked, "For Our Question-Box."

QUESTION 55.—*1. Do you consider the break-joint feature of the honey-board an essential one? That is, will the bees make fewer comb attachments on the under side of such a honey-board than they will to a honey-board having slats spaced without reference to the brood-frames below? 2. Will the break-joint honey-board—that is, one whose slats cover the space between the frames, cause the bees to deposit less propolis on the sections?*

I don't know. GEO. GRIMM.

1. Yes. 2. Not much less, if any. DADANT & SON.

I have had no experience. DR. A. B. MASON.

1. I have never used it. 2. I don't know.
E. FRANCE.

1. I think it will make little difference. 2. No.
L. C. ROOT.

I never tried them, but would object to any space anywhere in a bee-hive of less than ¼ inch or more than ⅜ inch. CHAS. F. MUTH.

I have had but little experience with such honey-boards. O. O. POPPLETON.

1. I do, for the purpose of keeping the queen out of the sections; not otherwise. 2. No.
MRS. L. HARRISON.

I do not use honey-boards of any description between the brood and surplus apartments. I have never found any practical use for them.
H. R. BOARDMAN.

1. I value highly the slat honey-board as made by Heddon, but I'm not sure the break-joint feature is essential. 2. It may a little, but I doubt if it makes much difference. C. C. MILLER.

1. No. I don't think it makes much difference. I use the perforated-zinc board, as it gives better satisfaction for all purposes. 2. I never could see much difference. PAUL L. VIALLON.

1. My super arrangements have no honey-boards, so I am not very well qualified on this question. I should say that the break-joint feature is useful, but not very important. 2. Probably.
E. E. HASTY.

I do. They surely will. 2. They will stick the sections badly unless we have the honey-board, and have it just right—that is, break-joint—with $\frac{5}{16}$ bee-space. This is no theory with me, but demonstrated fact. A. J. COOK.

I do not value the break-joint principle as highly as some do. The sections in use by the most of us are so wide that they make this break-joint principle above the honey-board; and why the need of that feature twice over? I don't think the honey-board has any thing to do with propolis.
G. M. DOOLITTLE.

Yes. I think there would be little difference in regard to the amount of comb built below the honey-board, or the amount of propolis on sections. The purpose of a honey-board is to prevent the building of combs between the sections and the top of the hive; and this result is more effectually accomplished by having the slats break joints with the frames below. JAMES A. GREEN.

Yes, very. Yes, they will make fewer brace-combs on the under side, and hardly any on the upper side when the break-joint honey-board is used; and to get rid of them on the upper side is of ten times more importance than the same result below. Not much difference regarding propolis, but in favor of the break-joint principle.
JAMES HEDDON.

I am a little surprised, friends, to hear so many of you say you have never tried the break-joint feature in the honey-board. It indicates that many of the things that are written and talked about to a considerable extent in the pages of our journals are never noticed or tried at all by many of our large honey-producers. I presume likely that many of you, like ourselves, get weary and perhaps disgusted in trying so many new things, which result only in bother and expense. The great point to me in this break-joint principle is in securing a case of sections entirely free and loose from the honey-board. It may be, however, that the break joint is not necessary. Friends Heddon and Hutchinson, I believe, deserve the credit of having first called attention to the fact that a honey-board can be so used as to prevent the bees sticking the wax to the inside of the section; but a good many declare that there is no particular virtue in the *break-joint* honey-board. We should like to have the matter tested thoroughly this coming season. Try half your honey-boards over brood-nests with frames spaced without reference to the slats above. Try an equal number on the break-joint principle. Let us have the results of your experiments.

QUESTION 56.—*Do you think a perforated zinc honey-board, wood bound, so as to provide a bee-space above and below, properly strengthened through the middle by a transverse slat, would answer the purpose of an ordinary slatted wood-zinc honey-board?*

Yes. PAUL L. VIALLON.

Yes. DADANT & SON.

I do. MRS. L. HARRISON.

I don't know. GEO. GRIMM.

I think it would. CHAS. F. MUTH.

I should think so. O. O. POPPLETON.

See answer to No. 55. H. R. Boardman.

I have answered this very important query, on page 394, previous issue. James Heddon.

I think a honey-board of any kind, with a bee-space above and below, would be undesirable. L. C. Root.

I have used a plain perforated-zinc honey-board between the brood-combs and the sections, and I like them. E. France.

If I were going to use honey-boards at all, I should be a little shy of metal sheets unless very well made indeed. E. E. Hasty.

If "properly strengthened" it might "answer the purpose;" but I should think it would not be as good as the slatted wood-zinc. Dr. A. B. Mason.

Yes; it will answer the purpose just as well as the other, except it is more liable to get harmed in taking off, by being so much more unsubstantial. G. M. Doolittle.

I can hardly tell, without trying, but I think I would rather have the slats. For ordinary use in working for comb honey, I don't want zinc between the slats. C. C. Miller.

Such a board would sometimes have bits of comb built between it and the sections. It would not be as rigid as the slat board, and would not keep the bee-spaces as exact. James A. Green.

I have not tried it. I know the slatted break-joint honey-board, with one zinc space between, is very excellent. I doubt if it can be excelled, either in excellence or economy. A. J. Cook.

With this question, too, I am surprised to hear so many say, "I don't know," "I think it would," or such like answers, indicating they have not had experience. With the tons of perforated zinc we are selling now, it seems as if the perforated zinc ought to be thoroughly tested by all prominent honey-producers.

QUESTION 57.—*Do you think that the addition of straight strips of perforated zinc, slid in saw-kerfs, so as to make what is called a queen-excluding honey-board, will in any way affect the quantity of comb honey stored above? In other words, will bees store as much honey above a queen-excluding slatted honey-board as they will above one not queen-excluding?*

1. No. 2. Yes. Dr. A. B. Mason.

See answer to No. 55. H. R. Boardman.

It makes no difference. Geo. Grimm.

Yes; but I prefer one queen-excluding. P. L. Viallon.

I have tried carefully, and could see no difference. A. J. Cook.

I don't suppose there is much difference, but I should think the zinc some little hindrance. C. C. Miller.

After careful watching for a few years past, I can not see that this matter affects the yield of honey a particle. G. M. Doolittle.

I do not think they would materially affect the quantity of honey stored by strong colonies, and probably not by weak ones. O. O. Poppleton.

It will probably affect it a little on the start. All obstructions are more or less objectionable to the bees, and sometimes cause them to hesitate. Dadant & Son.

So far as my experience goes, there is no difference. James A. Green.

I think it will lessen it to some extent. I think they will not. I want the drones to have access to my surplus arrangement. Mrs. L. Harrison.

I am sure that the amount of honey stored with a queen-excluding honey-board will be much less than with an abundant passage. I consider them very objectionable. L. C. Root.

I think they will store as much honey, but I don't know; but I think if we keep the drones down out of the surplus boxes the honey will be nicer. Those men-folks have no work to do up there. I am not sure that they clean their feet before going into the ladies' parlor. E. France.

The presence of a honey-board noticeably keeps the surplus honey-combs clean, and no kind of honey-board, that I have ever used, queen-excluding or otherwise, tends to lessen the amount of surplus stored, in the least; and I have had hundreds of queen-excluding boards in use during the last few seasons. James Heddon.

I think that depends largely on the strain of bees kept; some seeming very reluctant to work upstairs, and others so indifferent about that matter that they will skip over empty sections and work in a second tier. If your bees are of the former sort they will say that your queen-excluder is all the excuse they want for keeping below and getting ready to swarm. E. E. Hasty.

Honey-boards of any kind are none of my favorite arrangements. Bees should have an unimpeded access from the brood-chamber to the supers. Every impediment is at the expense of the honey-crop. If the queen is found in the section boxes, it is, generally, the fault of the bee-keeper who provided her majesty with too small a brood-chamber, or permitted the same to be crowded with honey or bee-bread, or both. Chas. F. Muth.

Now, friends, here we come to a question of very great moment—does the use of sheets of perforated zinc lessen our crop of honey? The majority of those who have tested the matter seem to think it makes no difference, and I am free to confess that I am a little surprised at this. L. C. Root, however, says he is sure the amount of honey stored will be less. I should think so too, to apply common-sense reasoning, without making any practical experiments. Mr. E. France thinks they will store as much honey, but does not know. I am afraid a great many simply guess at it, without having made a test. Prof. Cook has tested them carefully—says he sees no difference. J. A. Green says the same; also Doolittle. The Dadants think it might affect them at the start; and my experience is, that almost every thing of the kind is a little hindrance until the bees get well going. Hasty sagely suggests that the result may depend largely on the strain of bees. Muth does not like honey-boards at all; and I thought, until a few years ago, that I didn't; but I would use them to keep the bees from waxing the sections, if for nothing else; and I think I should hold fast to them, even if it took some of the honey-crop. Of course, I should not want to sacrifice very much.

MYSELF AND MY NEIGHBORS.

All ye shall be offended because of me this night.
MATT. 26:31.

FRIEND LIGHTY has given me a good thought in that severe letter of his, and I feel to thank him for it. Perhaps he did not intend it, and may be he did not have it in mind at all; but I thank him for it, all the same. And this is one of the grand good things about Christianity; it helps a man to find good in every thing, even in injustice and exaggeration. Not that it is right or best for any one to be abusive or to exaggerate, but that, when we do meet such things in this world, the true Christian can get good out of them; that is, he can so take all the events of life that they shall do him good. "All things shall work together for good to those who love the Lord." More anon, but *now* for our text.

Jesus and his disciples had finished their last supper, and they concluded it with a hymn. Would you like to know just what the hymn was which they sang? Geike suggests, and with every degree of probability, that it was the "grand Hallel," consisting of the 113th to the 118th Psalm. I suppose all the disciples joined in this hymn. Even poor Judas was accustomed to join in their hymns; but he, poor fellow, was just now absent on his errand for Satan. Peter helped sing, no doubt. Very likely he was one of the leaders in the hymns. And even Jesus himself sang too. What a blessed privilege it would be to hear that divine voice in melody! Well, after this hymn was sung, Jesus sadly tells his little flock the words of our text. The course he is now about to pursue is so different from what they expect, and probably so little to their liking, that he gives them these words of warning—"Ye shall all be offended because of me this night." I presume there was not a thought in the heart of any one of them at the time, disloyal or untrue; for we are told that they declared that nothing that could happen should demoralize them or drive them away. Poor Peter was headstrong. First he said, "Though all men shall be offended because of thee, yet will I never be offended." Then Jesus kindly but sadly told them what should happen before the crowing of the cock in the morning. But Peter was so vehement that he now, as it were, flatly contradicted the Master; in fact, what he says is equivalent to "I tell you, it is no such thing. Though I should die with thee, yet will I not deny thee." Peter had evidently got it into his mind that there was some fighting to be done. Jesus had spoken, a short time before, about swords. He uses the term figuratively. One of the disciples replied that they had two swords in the crowd, and asked if that would be enough. I can imagine the Lord and Master smiling sadly as he assured them that it would be a plenty. Poor fellows! with two poor implements of warfare they were going to fight against the whole world; yes, and against the powers of darkness too. It reminds one of a child who confidently proposes to help his father build a great barn; and in his innocence and want of judgment or sense he proposes to do it with some childish toy. Peter refuses to be guided by the Master. Perhaps he did not know it, but he was bent on having his own way. The whole band of followers were probably a great deal of Peter's mind. Their thoughts kept dwelling on the kingdom that was coming. They had seen the wonderful miracles, and their faith in their Master to perform miracles was unbounded. No doubt some great miracle was approaching—some miracle that should shake heaven and earth—perhaps show his power by thunderings and lightnings which were coming. The hated Romans were to be taught by some terrible and awful lesson that the God of the Jews was an all-powerful God. One who reads the narration carefully can not help being struck by the number of times Jesus had in vain tried to tell them that it was *suffering and death* on the cross that stood before him. But they did not heed it, or did not believe it. They went to sleep in the garden when he needed their sympathy and encouragement. They had learned the lesson well of his divinity. They knew the winds and the waves obeyed him, but they could not believe in his *humanity* as well. If he was Lord of all, what need of suffering?

Now, dear friends, is it not true that we Christians act like Peter and his companions? We make up our minds in regard to the course events *ought* to take and will take; and then when the straight and narrow path leads in a different way, we are disappointed. Perhaps Jesus decided that nothing could be done for Peter but to let him learn by experience. Now, is it not possible that God, in his infinite wisdom, has often decided that nothing can teach us but bitter experience? He decides for the time being to let us push ahead in our own headstrong way. We have our ideas in regard to the proper thing to do, and of the way to right the wrongs we see about us. God decides to let us go ahead and take the consequences. When we become convinced of our utter helplessness, and turn to him, then, and not till then, can he help us. Peter was in a hurry for the conflict. He was so sure that the Master would follow him up when he showed courage and zeal and faith, that he did not wait for the word of command. Hadn't the Master once before called him "rock"? May be Peter did not understand it that way. It has seemed to me, however, as though he did; and I am sure a great many since that day have thought that *Saint Peter* was the rock on which Christ Jesus' church was builded, forgetting that it was more likely the grand fact that Peter impulsively proclaimed to the world when he said, "Thou art the Christ, the Son of the living God." Any way, Peter seemed to have got it into his head that the Master was proud of him, and that he was going to make him more proud still by the exhibition of his courage and intrepidity against fearful odds. I don't know whether his sword was poor and old and rusty or not; but I don't believe that

Peter had a very stylish-looking weapon in those days. Such as it was, he decided to use it to commence the fight. So, notwithstanding the fearful odds against him, he rushes into the conflict and strikes a blow at the foremost one of the crowd. Peter may have had military training, but I doubt it. It would seem as if one even *without* military training might strike a man between the eyes, if he had already decided to kill him and as many more as fast as he could. Whether it was a want of skill, or excitement, we do not know; but we do know that all Peter's first blow accomplished was to take off the man's ear. What a predicament he had rushed into! There were only two swords in the little company of disciples, and perhaps not another man ready or willing to use the remaining one; and yet Peter was resisting the officers of the law; at least, the priests who were in the crowd would so decide it; and in those days they made short work of trying a man and putting him to death, especially with the help of the priests. Well, Peter, if I understand him correctly, would have it that Jesus was going to follow up this opening of the attack by some wonderful miracles. Now, in one respect Peter was right. But only one miracle followed, and that miracle was to put the ear back on its place, and make the man well. Before doing so, however, the Master told Peter to put up his sword in its place. He also added, "Thinkest thou that I can not now pray to my Father, and he shall presently give me twelve legions of angels?"

Peter now understands, if he did not before, that the battles that Jesus is to fight are not to be fought with warlike implements; neither are they to be fought with legions of angels. The swords are not wanted, nor weapons of any kind; neither are legions of soldiers, nor angels either. Jesus is to fight the battle single-handed and alone. The sympathy and the prayers of his followers are all he asks for, or all he wants. And just here I begin wondering how much Peter was in the habit of praying. They saw the Master praying often. Yes, at one time they asked him to tell them how to pray. He then gave them a copy. We don't know how much they used the copy, however, nor how much they prayed. I fear they fell into the error of thinking that, so long as he was with them to pray, they did not need to do much praying themselves. It seems very certain, at any rate, that Peter did not pray before rushing into the battle that night. Suppose he, too, had been praying instead of sleeping, how different might have been the result! After the oaths and curses which he used in declaring he was not a follower of Christ Jesus, and did not know him, he raised his eyes and caught a glimpse of the sorrowful face of his Master. Well, those pitying eyes as he looked on Peter while he was learning that terrible lesson, caused him to remember his boasting; then he went out and wept bitterly. Perhaps that was all poor Peter could do under the circumstances; but I should have rejoiced to see him, with his old impulsive nature, and with some of the courage he had shown when he drew his sword, get up before that motley crowd and declare, "Friends, I take it all back. I have told you a falsehood. I *am* one of the followers of Christ Jesus. It was I who smote the man and cut off his ear. I tried to kill him. I was bent on killing you all if you undertook to harm a hair of the Master's head. I am now ready to die with him; if, by my death, I can partly atone for the falsehood and cowardice and folly of the last hour, I am willing to die. Crucify me first if you choose, but let me be by his side." That is what *I* should have had Peter say and do. But, dear friends, it is quite likely that I should be making a similar blunder to that of poor Peter. Jesus knows best.

Now for some practical applications. Robert Ingersoll, and perhaps others, may call us hypocrites. They may say that it is the followers of Christ Jesus who fill our jails and penitentiaries. Shall we, like Peter, draw the sword and commence a prolonged fight and pitched battle? I do not believe it is the best way, friends; that is, I do not believe it is best to take very much time to reply. There are battles to fight and work to be done; but I don't believe that our Lord and Master wants us to fight in that way. If Peter had been down on his knees, praying for grace and a better spirit to see faults in his own heart, may be he would have had all the fighting he wanted. Jesus prayed in *agony of spirit* in the garden, before the conflict. Peter skipped the praying, and grasped the sword. Now, my friends, let us hold on to God's weapon—the weapon of prayer. Before we answer back, let us ask the Savior how he wants us to fight. That is what I have been doing. And, dear friends, the answer that comes to me ever since that letter came from friend Lighty, is, to set to work at *home.* I have determined to so live that there shall not be even a grain of truth in charges that are made against us as Christians.

Within a few days our branch road here at Medina has commenced running a Sunday train. They run from Cleveland to a beautiful little lake five miles below our town. Christian people feel bad about it. Some of them talk fight pretty strongly. Now, I feel pained every time the train swings up to the depot. I hope and pray that none of our Medina people may be guilty of patronizing this Sunday train. What shall I do to bring this about? Why, fight them the way the Master directed Peter to fight—observe the Sabbath day to keep it holy better than I have been doing. If we all do that, the trains will not run long on Sunday, I assure you, dear friends. Yes, even if *professors of religion* would obey the command, I think the train would stop for want of patronage.

A week ago yesterday I picked up a book written by E. P. Roe; and as E. P. Roe *used* to write excellent books, with good Christian morals, I thought the book might be fit for Sunday reading. I read it perhaps two hours, to find that it was nothing but a simple love-story. The moral, as nearly as I could get at it, was something like this:

If you fall in love with somebody, and the laws of God and of man forbid marriage, wait patiently until the human being who happens to be an obstacle in the way shall die. You must not *poison* him, neither must you *hope* he will die, because it is wicked; but when he *does* die, you can be happy. The author did not say what you should do in case the individual did not happen to be so accommodating as to die in proper season. I am ashamed to say that I wasted two hours in reading such a book. If E. P. Roe should see what I have written about his books, I hope he will repent and write things as he used to do when I was a boy. When I reviewed the day, before going to sleep, you may be very sure that I felt guilty in thinking of the two hours I had wasted. Yesterday I decided to do differently, so I took my Geike's Life of Christ, and with his aid I studied the life of the Savior. I presume I spent over two hours; and when night came, I felt glad that I knew more about the life of the Master than I had ever known before. I felt stronger, and better prepared to fight Satan and evil, because of this fresh companionship with the teachings of the Savior.

We don't fight very much with swords nowadays. God grant that we may never need to any more; but, dear friends, we do have some pretty big fights, not only in words, but on paper—saddest of all, a good many times in print, before the public. How fascinating it is! Somebody misrepresents you. An explanation is needed. After the explanation has been written, Satan whispers, "O my dear friend, there is just one other thing that should be added." You get that written, then he says again, "Oh, look here! it is lucky you happen to think of how nicely you can bring this in. Why, it makes a masterpiece of the whole thing, and utterly demolishes your opponent." If you are silly enough to be entrapped into going thus far, Satan gets more bold, and says, "Now, this thing is an extreme case. I would just use him up completely by some strong and severe language. It is a good thing to let people know that you are able to take care of yourself, and are not *afraid* to call men and things by their right names." Very likely it is a professor of religion who gets led along by the nose in just this way by the wily old serpent. Jesus said, "Love ye your enemies." The poor victim gets so far off from the track that he actually exults and rejoices at the prospects of demolishing and *using up* his opponent. Dear friends, you don't want to *use up* anybody. If we are Christians, we don't want to get *ahead* of anybody. During the great part of Jesus' examination he did not say any thing at all. He decided, with infinite wisdom, that there was nothing that could be said to make matters better. The Roman soldiers buffeted him and spit upon him and tortured him because they hated the Jews, and they *supposed* he was a Jew. The Jews hated him with tenfold more fierceness than the Romans did, because he had told them of their sins. Had the Romans known the facts in the case, they would have befriended him. They hated the Jews because of their hypocrisy. Jesus also hated their hypocrisy; but he loved them, sinners as they were, and said, "Father, forgive them, they know not what they do." Jesus bore the worst misrepresentation and injustice that any human being ever bore, and that without uttering a word of explanation to set himself right. I think that Christians a good many times had better keep silent, and let people misunderstand them and wrongfully accuse them. To make any kind of an answer seems to invite Satan to have a finger in the pie. Sometimes professors of religion are offended when we suggest "Love ye your enemies;" don't try to get ahead; don't try even to set yourself right. You ask in dismay what you shall do. Just what friend Lighty suggested—be a better Christian than you have been. Keep the Sabbath day more holy. Put away the sword you had fixed up to give a clip at your neighbor, and get down on your knees and have a big fight with the evil one who is getting a lodging-place in your own heart. Prove by your every act in life that you are not what evil ones declare you are; but don't say any thing about it to anybody. Just set to work doing good. Don't be *disappointed* when the Master tells how *he* would have you fight. Be quiet and patient and busy, and by and by shall we be *surprised* and *astonished* at the words, "Inasmuch as ye have done it unto one of the least of these my brethren, ye have done it unto me."

A KIND CORRECTION FROM FRIEND LANGSTROTH.

"FAITHFUL ARE THE WOUNDS OF A FRIEND."

FRIEND ROOT:—In your remarks on my indorsement of the new Heddon hive, you do its inventor and myself the justice to say, "I know, dear friend, that every word of the above comes honestly from the bottom of your heart, and is entirely unsolicited;" but as there may be some who do not know me so well as you do, I desire to state, without any reservations whatever, that I have neither received nor been promised, nor can ever accept, any pecuniary reward for publicly expressing my belief that the Heddon hive, with its system of management, marks a great step in advance, in practical bee culture. If, my dear friend, you had confined your comments to the merits or demerits of that hive, I should have been willing to trust to old father Time the decision of the matters in which we differ; but as you have on other points expressed opinions, which, however honest, seem to be contrary to the public good, I must ask for further space in your columns. Before discussing these points, allow me to say, my dear friend, that I think you have done wrong in referring to those things talked about between us more than thirteen years ago. Even if your memory had served you so well as to reproduce perfectly the subject of those conversations, I am convinced that, on further reflection, you will see that you ought never to have alluded to things which were spoken in the freedom of confidential intercourse. I wish that it were possible for me to stop short here; but I ought not to consent that your numerous readers who do not know me personally should form such a mistaken estimate of my character as silence on my part might seem to warrant. I must, therefore, ask the use of your columns to give my reasons for asserting that, in some very important respects, you have recollected what took place between us so imperfectly as to have misconceived, and therefore, unintentionally, to have misrepresented me. I can not admit that I ever have been so soured "as to feel that the world at large had done me a great injury," nor can I see any thing in my article which authorized you to remind me that "it is bad for any one to let the idea creep into his mind that the world has never given him due credit, or that he has never been appreciated or properly rewarded."

Before I give, in order to refresh your memory, what I believe to be the real purport of those conversations, let me quote again from your comments: "I will not dispute but that a few individuals did you great wrong." Nor will I dispute, my dear friend, that I did express to you a deep indignation against them, which you thought, and very properly, too, was carried so far as to amount to real bitterness. After retiring for the night I was, for a long time, too much troubled to sleep. The loud tickings of my watch seemed only to repeat the name of one particular party. Before I slept, I tried to empty my heart of all its bitterness toward him, and to forgive all who had wronged me. I told you, when you came into my room the next morning, how happy my better experience had made me; but I did not express, what I have never felt, any change of opinion as to the cruel injustice with which I had been treated. Now, friend Root, I think that you may very properly ask me, as our recollections differ so widely, to give my reasons for being so confident that mine are right and yours wrong. My first reason is, that I have never felt "that the world at large had done me a great wrong." Such an idea is abhorrent to my whole nature; and how, then, was it possible for me ever to give it utterance? If this reason does not seem to you conclusive, let me refer you to words of our friend, and the friend of all honest bee-keepers, Professor A. J. Cook, as found in his "Manual of the Apiary," page 286, fourth edition:

> But it gives me the greatest pleasure to state, that by no possible word could I gather that Mr. Langstroth feels any bitterness toward those who seem willfully to have stolen his invention, while, with a mantle of charity great as is his noble heart, he covers the thousands who either thought he had no valid claim, or else that the purchase of a right from others entitled them to his invention. As an inventor and writer on apiculture, Mr. Langstroth will ever be held in grateful memory. How earnestly will American apiarists desire that he may be spared to us until he completes his autobiography, that we may learn how he arrived at his great discovery, and may study the methods by which he gleaned so many rich and valuable truths!

If more is needed to show that you ought not to have said to me, "I am sure it is bad for any one to let the idea creep into his mind that the world has never given him due credit, or that he has never been appreciated or properly rewarded," I refer you to all who have heard me in our bee-conventions. Is there one who will say that he has found me to possess a spirit other than that which our friend Cook ascribes to me? What intelligent bee-keeper will say that I have ever been properly rewarded for my invention—and how many have heard me say in these conventions, that I felt that I had been over-appreciated, and have heard me point out how near others before me came to inventing a practical movable-frame hive, showing that the times were ripe for such an invention, and that, if I had not invented it, some one else soon would!

My second reason for such great confidence as I have expressed, is, that I have an unusually strong memory, as all who know me well are aware, for any thing in which, at the time of its occurrence, I took a deep interest. I could easily fill pages with reminiscences of that pleasant visit to your hospitable home; and I can see, "in my mind's eye," the cosy little bedroom which I occupied, and the very position of my watch as it ticked out that name!

My third reason for asking the public to trust my memory rather than yours, I know that you will frankly admit to be a good one when I refer you to GLEANINGS for July, 1881, p. 321, in which you comment in such a kindly spirit upon one of my contributions: "May the Lord bless you, my good kind friend, for your frank and faithful way of taking your old friend to task. I certainly had forgotten giving the advice you quote, and felt sure I had never said any thing favoring grape sugar so strongly for wintering" (and yet that advice was given as late as Oct., 1880!) * * * "As an excuse and apology to our readers for the inconsistencies friend L. has so kindly pointed out, I would say that I am getting to have a great business on my hands. In my zeal for getting boys and girls to work (that immortal souls may be saved), a great traffic has opened in supplies. Brains are so much needed at every turn, and so many points are gone over in a single day, that I am no longer able to remember what I have written and advised as I did a few years ago."

With these reasons before you, I earnestly beg you, my dear friend, to review your comments upon my article, first asking yourself if there was a single thought in it which ought to have suggested such harsh criticisms of an old friend; and, further, if even in the height of my burning indignation against the men who had robbed me of the fruits of my invention, and who tried to rob me of my good name also, I did not say enough to show beyond question that I had not that narrow and sour spirit which I despise from the bottom of my heart. Try to put yourself, friend Root, in my place, by asking whether there is any thing in the Bible which would prevent you, however great your love of charity, from feeling a burning sense of moral indignation against parties who, to turn your great paper, and your large supply-traffic into ashes, as it were, before your eyes, should not hesitate to denounce you before the world, and those whom you love best, as guilty of crimes which ought to consign you to the penitentiary.

As I pen these words, I can easily picture to myself, your dear wife, with Ernest and little Blue Eyes, just as I saw them in those happy days, 13 years ago.

As this article is already much longer than I intended, I must reserve for another time what I have to say upon the other matter on which we differ, and will, with thanks for allowing me the use of your columns for such very plain talk, sign myself as ever, your true friend and well-wisher—

L. L. LANGSTROTH.

Dayton, Ohio, May 24, 1888.

Dear friend L., I most cheerfully accept your statement in regard to the little incident which I tried to tell. No doubt your memory is much better than my own, for the reason you have alluded to in your quotation. Most surely I never intended to convey the idea to any one that there was any thing sour or narrow in the genial spirit of our old friend Langstroth. If such an impression was ever given, I most heartily beg pardon, and accept your statement of the matter.

A KINDLY CRITICISM FROM PROF. COOK.

SHALL WE ENCOURAGE THE PRACTICE OF SELLING INDIVIDUAL RIGHTS, ETC.?

DEAR FRIEND ROOT:—As a true friend who has great respect for your work, great regard for yourself, and who rarely finds occasion to differ seriously if at all with the positions you have taken, yet I must express my sorrow at the words you speak in reply to our dear friend Langstroth's article on the Heddon hive. First, I am sorry you say: "With the exception of friend Heddon I believe almost all the bee-keepers of our land have abandoned the matter of individual rights as not the proper thing to do." Now, dear friend, I hope, as I believe, that you are in error. I am on the side, emphatically, of your minority; and I believe there is an army with me. I don't believe Mr. Langstroth has ever advised against it because *it is improper*. Oh no! only because it is ill advised. And why ill advised? Just because of such editorials as you have written. Our people will not respect the right of property—a patent on an original invention is as much property as a horse—till we all teach that all property is sacred. A person who patents a cheap article, especially if the article is not greatly in demand, is very likely to have the article pilfered from him. If of great value, like the movable frame, it is easy for designing men to berate its value, or create, by insinuating remarks, a general mistrust of its originality, and thus, as in the case of Mr. Langstroth, do terrible injury. O friend Root! don't say "improper." Say patents on original inventions are right and legitimate, and should ever be respected and honored. I should have as much right to patent a new invention as to copyright my book. Was that an improper thing? Your many inventions, chief of which is your roller machine, you could, from your position as editor, author, and general supply-dealer, well afford to give to the public; for, from your great chance to advertise, you could hold your own against rival manufacturers. Yet you charged three prices at first (through no fault of yours, however, though you consented to it) for your roller machine, and thus obtained what you condemn in a patentee.

My dear friend, I wish you would come out square in this matter as follows: A man who discovers or invents a new thing has a perfect right to a patent on it. If valuable, any who use it should pay for the right. If worthless, no one should buy. I would not for any consideration teach what you teach on this matter. I would urge all to be wary in buying patents; never to do so till they are sure of the value of the article, and of its suitability to their business or needs. Everybody must be judge of his invention, and, I think, has a perfect right to secure a patent. Patents, then, are not wrong or improper.

Again, I am sorry you said what you did about or to Mr. Langstroth. If ever a man had occasion for righteous indignation it is he. In my many visits with this grand old man I have ever marveled at his charity and kind spirit; even to those who outrageously cheated him out of his just rights. You, friend Root, Mr. Langstroth, I, nor any other man can use language too strong in denouncing such practices. I am perfectly sure Mr. Langstroth has not been "properly rewarded." I am just as sure that he was atrociously swindled.

As to Mr. Heddon. He surely invented his hive. No intelligent bee-keeper in America doubts it. If you or I think it valueless, or no better than the old non-patented hives, let us say so. Surely let us urge all to adopt it only after careful investigation. But if any do use it, let them pay for the right, just as they would pay for a sack of flour or the A B C. I think to pay $5.00 for the right is a grand precedent. It is right and honest. Most kindly and earnestly your friend,— A. J. COOK.

Agricultural College, Mich., May 25, 1888.

Friend Cook, I am deeply pained to be obliged to disagree with you, as I must conscientiously disagree on this question. Pretty much all you have said in the above was talked over years ago. We did not agree then, and we probably shall not agree now. I think we agree *fully*, however, in regard to respecting the rights of property. Your book is clearly your own. There is no question about the ownership. When you get into this business of individual rights, it is like deciding when sweet cider becomes sour or intoxicating. Most good people have decided not to drink cider *at all*, on account of the harm it has done; and I think, too, that most good people have decided to have nothing to do with this right-selling because of the harm it has done, and of the swindles it has fostered and encouraged. Very likely quite a large class of people think I have wronged Mr. Forncrook in defending the rights of the bee-keeping public. You, perhaps, say that Mr. Forncrook invented a very little and claimed a good deal. If so, who can draw the dividing line? GLEANINGS has always opposed right-selling, because of the kind of fruit it has borne; and I am pretty sure that GLEANINGS will always stand where it has stood. Other bee-journals can take a different position if they choose, and I shall feel just as friendly toward the editors as if they thought as I do. I did not mean to bring this subject up, and I should not have brought it up had I not been obliged to decide between two alternatives. I decided in the way that I thought kindest and wisest; and, dear friend Cook, I do not believe that I am so very much in the wrong. Many kind words have come in, approving of my course; but at this date, *not one* taking the side of friend Heddon and our good friend Langstroth, except your own article above. Under the circumstances, I think it would be no more than fair to use a portion of a letter from our good friend W. E. Clark, president of the York State Bee-keepers' Association. It is as follows:

Dear Brother:—I think the bee-keepers ought to call a mass meeting and vote you a monument, and write thereon, "In memory of the man who dared to stand up for principle and right." I would give $5.00 for GLEANINGS, even if it were published only once in six months; and all it need to contain would be a reply to patent-right claimants such as is in the last issue, in reply to Mr. Langstroth's article on patents. Friend Root, that article is worth more to bee-keepers than all the patent hives ever made or ever will be. When I read it I could not help saying, "Well done, good and faithful servant of bee-keepers. God will reward you for doing your duty." W. E. CLARK.

Oriskany, N. Y., May 24, 1888.

One is led to smile at friend C.'s extravagance; but, dear friends, there is a moral to all this. Prof. Cook wields a wonderful influence throughout Michigan — in fact, throughout the country at large. President Clark also wields a large influence throughout York State; and this matter of patents has already come up in the conventions in York State, and it has at different times brought bitterness in our ranks. I have recently attended conventions both in Michigan and York State, and I love the people whom I have met at all these conventions. Now, if Prof. Cook and President Clark both hold on tenaciously to what they have expressed in the above letters, there is going to be quarreling and bitterness to the end, and perhaps it will be encouraged by these two letters between the two great honey-producing States of New York and Michigan unless —. How shall I fill out this blank, dear friends? Why, in this way: The only hope of peace and kind brotherly feeling is, that both give way a little. I ask you, friend Clark, to give way a little, and have more respect for those who believe in patents; and I ask you too, friend Cook, to consider the opinions and convictions of many other good people, and be less positive. Then may we have peace and harmony. As for myself, you may do as you please with me, or put me where you like, and I will be silent; only do not ask me any more to publish any thing in favor of selling "*patent-rights*" *on bee-hives.*

REPORTS ENCOURAGING.

NEW HONEY FROM NEVADA THAT IS "JUST SPLENDID."

EVERY thing looks well and favorable for a good harvest in this section—lots of eggs, brood, and young bees; and our honey here is "just splendid"—very light-colored, and free from any foreign flavor, for they get but little except the clovers, and of course there is no mixture. Perhaps I will send you a sample of it some time in the course of the season; and if you think as much of it as Dr. Mason did, I shall be well repaid for sending it. E. A. MOORE.

Reno, Nevada, April 24, 1888.

SUCCESSFUL.

As I am one of your A B C scholars, and a little proud of my success, I give you a little of my experience. I wintered 37 colonies through the winter of 1886, packed in chaff, on summer stands, without any loss. From these I took 1725 lbs., which brought me $216.14. Last winter I had 47 stands; I lost one. My bees are in first-class condition, and I think the prospect is good for a large yield. I take GLEANINGS, and think I made enough extra on my honey in consequence to pay for it ten years at least.

Millview, Pa., Apr. 30, 1888. JOHN NORTON.

NO LOSS.

Apple-trees are in blossom, and bees are in good shape. We are happy to say we wintered our bees without loss. I don't know of a single colony that perished in this locality. Fruit-bloom yields honey in abundance. To my surprise, one of our Italian colonies sent out a rousing swarm to-day. The season has opened with good prospects.

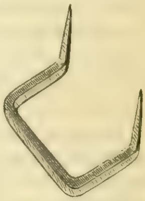
Douglas, O., May 11. HILLSIDE APIARY.

OUR OWN APIARY.

CONDUCTED BY ERNEST R. ROOT.

THAT NEW WIRE SUPPORT FOR THE T TINS.

THE little pieces of strap iron are good when once put on; but the trouble of cutting them up, perforating two holes, together with nailing them on the bottom edges of the sides of the T supers, made them a little expensive. In response to my call for something better, we received a great many suggestions, but hardly any of them were practicable. One of the correspondents, however, put us on the track of an idea which developed into something like the accompanying cut. You will observe that it is nothing more nor less than an ordinary staple of suitable size, bent at right angles in the middle. The prongs pointing upward are driven into the bottom edge of the wood in such a way as to leave the horizontal U projecting far enough inside to support the end of the T tin. After we had developed this idea, a letter from one of our correspondents came to hand, inclosing a few samples of identically the same thing.


T-TIN SUPPORT.

These staples make not only a neater and prettier job, but very much cheaper, and they can be put on very much more rapidly. Notice prices in the column of Special Notices. We sent one of these supports to C. C. Miller for his opinion; and in reply respecting them he says: "The staple T-tin rest is at hand; and after trying to find some fault with it I am obliged to say it is excellent. . . . . It is much stronger than sheet iron." All T supers sent out now will have the new T-tin rest. I omitted to mention that straight staples can be used, and are a little cheaper. They are to be driven about half way into the wood, and then bent at right angles. After trying both ways we much prefer to drive the staple first mentioned. It goes in easier, and is not so liable to split the wood.

WOOD-ZINC HONEY-BOARDS TO BE TESTED THIS SEASON.

It would seem that those wood-zinc honey-boards, illustrated in the last issue in this department, are going to have a thorough test this season. Orders have poured in continuously for them. We want reports from those who are purchasing them. From some localities we ought to have them in a couple of weeks. Tell us whether they answer every purpose, both for queen-excluding and the prevention of burr-combs on the sections; whether they are durable, and whether they possess advantages not contained in the other honey-boards. Let the truth strike where it will.

GLEANINGS IN BEE CULTURE.

Published Semi-Monthly.

A. I. ROOT,
EDITOR AND PUBLISHER,
MEDINA, OHIO.

TERMS: $1.00 PER YEAR, POSTPAID.

For Clubbing Rates, See First Page of Reading Matter.

MEDINA, JUNE 1, 1888.

Do all things without murmurings and disputings: that ye may be blameless and harmless, the sons of God, without rebuke, in the midst of a crooked and perverse nation, among whom ye shine as lights in the world.—PHIL. 2: 14, 15.

WE have up to date, 8246 subscribers, a gain of 119 within the last month. Thanks.

THE BRITISH HONEY COMPANY INSOLVENT.

WE learn that the above company has sent out a circular to the effect that it has been proven, in consequence of its liabilities, that it can not continue its business. They therefore wind up voluntarily.

AN INJUDICIOUS ECONOMY OF PAPER.

ONE or two of our correspondents, in sending in their communications, after writing horizontally down the page, turn the sheet at right angles and write crosswise of the other written matter. We know our friends do not think; but really it makes us "tired" to see such letters. Paper is cheap, and postage is cheap; and we should be very glad to have our correspondents take plenty of room.

THE NEXT PLACE OF MEETING OF THE N. A. B. K. S.

The president, Dr. A. B. Mason, announces that 62 out of a total number of 81 have thus far expressed their preference for Columbus, and that only one was not in favor of it, and he does not oppose it. This, however, is not an official vote, but it looks pretty decidedly as if we were going to have the next national convention at Columbus at this rate. An official count will be given in our next issue.

QUEENS TO CANADA—TROUBLE AHEAD.

FROM the *C. B. J.* of May 23 we learn that "the Canadian postal officials have decided that a queen-bee shall not be admissible into Canada from the United States, through the mails." We hope brother Jones will bring his great influence to bear upon those officious officials. The trouble this time is not with Uncle Sam, but with his neighbor across the line.

Since the above was written we have received the following from the D. A. Jones Co.:

Mr. Root:—We have to-day received a letter from the postoffice, of which the following is a copy:

Postoffice, Inspector's Office, Barrie, May 22.

D. A. Jones Co.:— With reference to the transmission of queen-bees in the mail between Canada and the United States, I am to inform you that the correspondence on this question is now in progress between the postoffice department here and at Washington on the subject. You will be notified of the result.
DANIEL SPRY, P. O. I.

As soon as we receive information we will advise you. We shall certainly do what we can to have the matter properly adjusted.
THE D. A. JONES CO., LTD.

We have no doubt the matter will be adjusted agreeably to all parties concerned.

ADULTERATED COMB HONEY, ETC.

I DO not see but that it falls upon GLEANINGS to call to order as good a man and as great a man as Thomas William Cowan—see *British Bee Journal*, page 234, May 10. I shall have to explain a little. At the bee-keepers' convention in Utica, N. Y., last winter, one of Thurber, Whyland & Co.'s men was very busy in distributing circulars to the bee-men. He had a great pile of them, and evidently made it his business to spread them broadcast. These slips of paper gave an analysis of honey which was made, as was stated, by the dairy commissioner of New Jersey. We do not know who this dairy commissioner is, nor how good an authority he is; but when I first glanced over the circular I felt a little troubled to see that it contained a list of names of good and responsible firms who were accused of selling adulterated honey. In fact, almost every sample of honey that was examined, according to said report, was adulterated, with the exception of a few samples from private farmers or bee-keepers, with one *other* exception. This exception is Thuber, Whyland & Co. Now, the singular part of the whole thing is, that samples No. 57, 58, and 60 were *comb* honey, and not *strained* honey, although the heading in small capitals, at the top of the list, says "strained honey." Friend Cowan takes the matter up, and reflects somewhat on American honey, especially the fact that the American comb honey in our markets is, at least some of it, adulterated. The *Bee-Keepers' Magazine* also indorses the paper, and makes some severe reflections on firms that we believe to be good and honorable men. I am exceedingly glad to know that the Thurbers, who so recently put up honey with corn syrup in to keep it from candying, have reformed to such an extent as this circular indicates, but I do not believe that everybody else has gone into the adulterating business. We have instances on record before, where some sort of a chemist has pronounced absolutely pure honey, gathered from the flowers by honest bees belonging to an honest bee-keeper, adulterated. Who can give us some further information in regard to this dairy commissioner of New Jersey, and this statement given by the *American Grocer*, presenting such a disgraceful showing of the bee-keeping industry of the United States? I thoroughly indorse all that the *B. B. J.* has to say in regard to Hoge; and the whole matter looks very much as if Hoge still had hold of the crank. But we beg our English cousins to remember that the American people are not all Hoges, *by any means*.

OIL OF PEPPERMINT AS AN INSECTICIDE.

We clip the following from the Boston *Cultivator:*

> Oil of peppermint in vapor, diluted even to a part in 100,000, will kill cockroaches in an hour, they dying in convulsions. One drop of the oil placed under a bell-jar covering a cultivation of cholera bacilli will kill both bacilli and spores in forty-eight hours. It is also regarded as among the best surgical antiseptics, and of great value in phthisis and diphtheria.

Now, if this diluted vapor would not kill the bees also, it might help our friends in the South who have complained so much about cockroaches at different times; and why shouldn't it kill foul-brood bacilli, and may be green flies in the greenhouse, etc.? It would not be a very difficult matter to fill a greenhouse with a very diluted vapor of the oil of peppermint. Can Prof. Cook, or any of the experimenting professors at our various experimental colleges, give us any light in regard to the matter?

MIXING MATTER FOR PUBLICATION WITH BUSINESS LETTERS.

We must again remind readers that we should be very greatly obliged to them if they would separate the matter they intend for print from that really pertaining to business matters. Where the two are put together on one sheet, those matters which demand most immediate attention must be attended to first. For instance, John Brown sends in, we will say, $5.00—one dollar to be applied for a queen, and the rest for bee-supplies in general. On the same sheet of paper containing these orders will be a Report Encouraging. Well, this matter must first go to the subscription clerk. After she has finished her part of it, it goes to the queen clerk, and the next, and so on, until the clerks of the different departments have attended to the necessary business. By the time each clerk has made his or her memorandum on the different portions of the letter the report has been delayed, and, moreover, has been more or less marked up with various business signs and clerks' initials. If our correspondents will take pains to put matter for GLEANINGS on a separate sheet, it can go direct to the printers' hands, if acceptable. Some feel a little modest about marking their communications "For GLEANINGS," and they conclude by saying, "This is not necessarily intended for print, but for your own personal instructions." Do not be too modest about it, but come right out and say you have written it for the pages of GLEANINGS, and put it *on paper by itself.*

PARIS GREEN ON THE FRUIT-TREES — WILL IT HURT THE BEES?

I PRESUME that most of our progressive bee-men are aware that modern science in this present year of 1888 has demonstrated that we can grow nice smooth apples, pears, cherries, peaches, and we hope plums too, without spot or blemish, wrinkle or gnarl, by the timely use of arsenical poisons. We have already been all over our plantation with a $35.00 machine, manufactured by The Nixon Nozzle & Machine Co., Dayton, O. The pump and Nixon nozzle will throw a liquid in such a fine spray that it floats like a cloud through the top of an apple-tree, covering every leaf and twig, upper side and under side. This is usually done just as the petals are falling from the most of the blossoms, and a second time when the fruit is of the size of peas or a little larger. We use about half a pound of London purple to 50 gallons of water, and this quantity of poison will go pretty well over a small orchard one time. I feel pretty sure that it answers the purpose, for our cherries for the first time in years are perfectly free from the marks of the curculio or any other insect, while cherries on trees belonging to our neighbors are badly punctured. Now, then, will it hurt the bees? So far, I can only say that I have not been able to discover any harm. I have looked under the trees, but no dead bees were to be found. Then the question arises, "If the bees are poisoned, can the poison act quick enough so we should find them under the trees?" If the bees were working on the trees at the time the poison was applied, I think it might poison those which were not driven away by the spray. Possibly it might kill those that came immediately afterward; but even if it did, the number of bees destroyed would be so few that I don't believe it would be noticed by the apiarist. The poison dries down on the foliage and on the immature fruit; but the honey that exudes, say the next day after the spraying, I do not believe would be poisonous. Only the insects that feed upon the leaves or surface of the green fruit are injured. Can others give us any further light upon the subject?

SECTIONS EXACTLY SEVEN TO THE FOOT.

QUITE a number of the friends have their cases so made that they take exactly so many sections, no more no less; therefore in order to give them just the width they want so that a certain number may come out just right, we have to work to a hair's breadth on each section; for if there is the slightest variation in the pieces it becomes greatly magnified when quite a number are placed one against another. Well, we could easily get this hair's breath—that is, if basswood would neither shrink nor swell. All wood-workers know that, no matter how perfectly lumber is seasoned, when we come to cut it up into thin pieces it will always shrink more or less after cutting up; therefore, in order to have seven sections, when side by side, measure just 12 inches, we must cut them so they will measure a little more. Now, the worst part of it is, that this shrinkage and swelling is never uniform. Sometimes it will be a great deal more than we expect, and sometimes a great deal less. Another thing, it is our custom to make sections the year round. As soon as orders are filled for one season we begin making them for another. Well, this process of seasoning still continues for perhaps a whole year, so that sections just right in the fall will be too small by another season. We have made this explanation simply to show how difficult it is to please you in this respect, and not because we are going to stop trying. I would suggest, however, that cases and arrangements for surplus honey be so made as to allow a little space for this shrinking and swelling. One good friend accuses us of giving scant measure, in the same way that we complained of the barrels of apples that did not hold three bushels. Why, bless you, friends, the quarter-inch of basswood that is saved on seven sections does us no good whatever, and it would not cost us a copper more to make them all a quarter-inch *too large.* In the above case we got a pretty severe letter because seven sections, side by side, lacked a quarter-inch of measuring a foot. Divide ¼ inch into seven equal portions and you will see that each section was only $\frac{1}{28}$ of an inch too narrow, and it takes a pretty smart wood-worker to work as closely as within $\frac{1}{28}$ of an inch.

THE BEE-KEEPERS' REVIEW

for May is now out. Having regained the time lost during his illness, the editor will hereafter take pride in getting out the REVIEW promptly on the 10th of each month. The special topic of the present issue is "Hiving Bees." The review of Mr. Cheshire's work, which was begun in the March No., is finished in the present issue. We have a surplus of the numbers containing this review, and, so long as they last, these three numbers will be sent free to all who apply. Price of the REVIEW, 50 cts. a year.

THE PRODUCTION OF COMB HONEY.

A neat little book of 45 pages; price 25 cts. The REVIEW and this book for 65 cts. Stamps taken, either U. S. or Canadian. Address

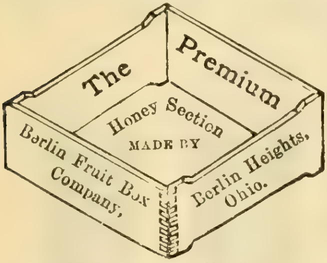
W. Z. HUTCHINSON,
613 Wood St. **Flint, Mich.**

☞In responding to this advertisement mention GLEANINGS.

FOUNDATION! Samples and prices for your address.

FOR SALE. FIRST-CLASS SAW-TABLE, saws, emery wheel, etc. Fully described on application. **H. L. GRAHAM,**
Mention Gleanings. **Grandview, Iowa.**

I HAVE a fine lot of pure Italians for sale. Tested queens, in May, $2.00; June, $1.50. Warranted queens, in May, $1.00; in June, 75 cts. One-frame nucleus, with tested queen, in May, with 1 lb. of bees, $3.00 each; extra frame, 50 cts. I have sold, this spring, $150 worth of bees and queens.
10-11-12d **C. E. JONES, Ostrander, O.**



Our No. 2 one-piece sections beat all in utility for the price—only $2.60 per M. for 4¼x4¼. Our No. 1 take the cake, and only $3.60 per M. Liberal discount on large orders.

Address as in cut.

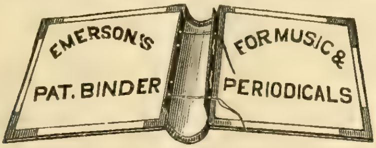
10-11-12d

FOR SALE CHEAP.

50 of Root's chaff hives, made from selected lumber, well seasoned. Will be sold in the flat at greatly reduced prices. I also have several thousand of those beautiful eight-color chromo cards, which will be sold at very low rates. Address at once,

J. H. MARTIN,
10-11d **Hartford, Wash Co., N. Y.**

☞In responding to this advertisement mention GLEANIN



You can not look over the back No's of GLEANINGS or any other Periodical with satisfaction, unless they are in some kind of a Binder. Who has not said—"Dear me, what a bother—I *must* have last month's Journal and it is nowhere to be found?" Put each No. in the Emerson Binder as soon as it comes, and you can sit down happy, any time you wish to find anything you may have previously seen, even though it were months ago.

Binders for GLEANINGS (will hold them for one year), gilt lettered, for 60 cts.; by mail, 12 cts. extra. Ten, $5.00; 100, $45.00. Table of prices of Binders for any Periodical, mailed on application. Send in your orders. A. I. ROOT, Medina, Ohio.

The Canadian P. O. authorities refuse to receive these through the mails, as they exceed the proper weight for merchandise.

WARRANTED QUEENS

At 75 cents each. Untested queens, ½ doz., $3.75; 1 doz., $7.00. Money orders, New Iberia, La.
J. W. K. SHAW & CO., Loreauville, La.

MUSIC Taught by the United States Music Chart, with moving tone-ladder. Chords, Sharps, Flats, Transposition of Major and Minor Scales. Equals a year in music. New, and useful to all. By mail, 25c. C. A. CAMP, Painesville, Ohio.

COGGESHALL'S HILLSIDE APIARY.

Italian Queens and Bees by the pound, Nuclei or Full Colonies. Send for circular.

W. B. COGGESHALL,
Box 84. Summit, Union Co., N. J.

Don't Look at This! Unless

you wish to buy Comb Foundation. If you do, send us your order and get the best quality for 50 cts.; 10-lb. lots, 40 cts. **R. B. MORRIS,**
10-13db **Rantoul Nursery, Rantoul, Ill.**

ITALIAN QUEENS.

Untested, 75 cts.; tested, $1.25. Untested, per dozen, $8.00. **I. GOOD,**
10tfdb **Sparta, White Co., Tenn.**

BEES and queens cheap. Tested queen, $1.50. Untested, $1.00. Frame of brood, 50 cts. Bees, per lb., $1.00; ½-lb., 60 cts.; 3-frame nuclei a specialty. Send card for price list.

MISS A. M. TAYLOR,
Mulberry Grove, Bond Co., Ill., Box 77.

BEES AND NUCLEI CHEAP.

Prompt shipment guaranteed, you paying express charges. Untested queens, $1.00; 3 for $2.75, in May and after. 1-frame nucleus, 2 lbs. bees, $2.65; with untested queen, $3.55. 2-frame nucleus, 3 lbs. bees, $4.00; with q., $4.90; L. frames, half full of brood. I guarantee safe arrival of bees and queens. Make all money orders payable at Clifton, Tex. Send to
10-11d S. H. COLWICK, Norse, Bosque Co., Texas.

☞In responding to this advertisement mention GLEANINGS.

I WILL SELL OUT CHEAP!

my entire apiary of over **100 COLONIES,** all strong, and in No. 1 chaff hives, Langstroth frame.

A BARGAIN FOR SOME ONE.

Inquire at once. **E. W. COTTRELL,**
10-11-12d **No. 4 Merrill Block, Detroit, Mich.**

CHENANGO VALLEY APIARY.

HEADQUARTERS IN N. Y. STATE

For superior yellow ITALIAN QUEENS. In order to introduce my strain of bees, I offer one-frame nuclei, with untested queen, for $1.50 each, Langstroth frame; untested queen, $1.00; select tested, $2.00. Reference if desired. Send stamp for reply, to A. I. Root, or National Bank of Sherburne. Send for free circular. MRS. OLIVER COLE,
6tfdb Sherburne, Chenango Co., N. Y.

☞In responding to this advertisement mention GLEANINGS.

A Four-Color Label for Only 75 Cts. Per Thousand!

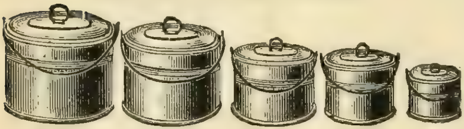
Just think of it! we can furnish you a very neat *four-color* label, with your name and address, with the choice of having either "comb" or "extracted" before the word "honey," for only 75 cts. per thousand; 50 cts. per 500, or 30 cts. for 250, postpaid. The size of the label is 2½ x 1 inch—just right to go round the neck of a bottle, to put on a section, or to adorn the front of a honey-tumbler. Send for our special label catalogue for samples of this and many other pretty designs in label work.

A. I. ROOT, Medina, Ohio.

TIN AND GLASS HONEY-RECEPTACLES.

IF YOU DO NOT FIND WHAT YOU WANT IN THIS LIST, LET US KNOW YOUR WANTS, AND WE WILL TRY TO SUPPLY YOU.

RAISED COVER PAILS.

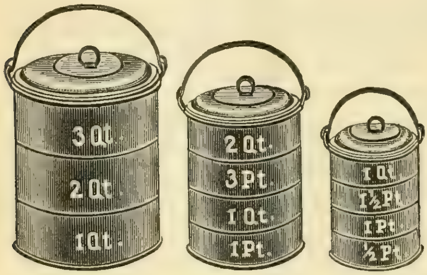

4 qt.
3 qt.
2 qt.
1 qt.
1 pt.

We annually sell over 1000 nests of the above pails, besides thousands of the smaller sizes. They are popular, because, when you sell one full of honey, your customer has something handy and useful when the honey is gone. Prices are as follows:

	Each.	10	50	100	Wt. of 100
Nest of 5 pails	.40	$3.60	$16.50	$32.00	400 lbs.
Nest of 3 smallest sizes	.20	1.75	8.00	14.50	175 lbs.
Nest of 2 smallest sizes	.10	95	4.50	8.20	
Nest of 1 and 2 qt	.15	1.30	6.00	11.00	
Nest of 3 smallest sizes, painted and lettered, "Pure Honey".	30	2.75	13.00	25.00	190 lbs.

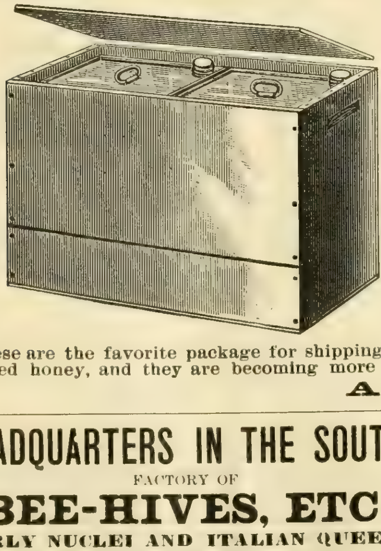
For prices, boxed, each size separately, see page 21 of catalogue.

NOVELTY PAILS.


3 Qt.
2 Qt.
1 Qt.
2 Qt.
3 Pt.
1 Qt.
1 Pt.
1 Qt.
1½ Pt.
1 Pt.
½ Pt.

This nest (of which the 4 qt. not shown) comprises the same sizes as the above, except the 1-pint pail. Prices for the nest of 4 pails, same as the nest of 5 above. 1 and 2 qt. nested, at $12.00 per 100 nests, or $1.40 for 10.

60-LB. SQUARE SHIPPING-CANS, BOXED.



These are the favorite package for shipping extracted honey, and they are becoming more and more popular as their merits become known. With one of the 15-cent honey-gates to screw on, nothing could be handier to fill up small packages to retail out. With the honey-gate you can cut the stream off instantly the moment you have enough, and it is so easily attached to the can too. Simply unscrew the cap and screw on the gate in its stead. Prices are as follows:

1 box of 2 cans, 90c; 10, $8.00; 25 or more, 75c each.
1 box of 1 can, 50c; 10, 4.50; 25 or more, 42c each.

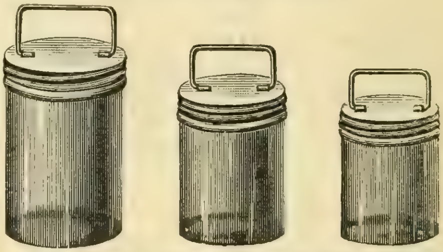
We can add a large screw-cap, with 4-inch opening, for digging out candied honey when desired, for 5c extra, *each can*. The caps used on above cans are 1½-inch, flat zinc, cork-lined, and will be sold to those desiring to make or have made at home their own cans, at 3c each; 10 for 25c; $2.00 per 100; or $17.50 per 1000.

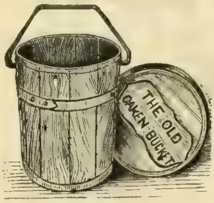
HONEY-TUMBLERS.

We have at length secured some honey-tumblers of the right size to hold 1 lb. of honey as well as ½ and ¼ lb. They are a handsome shape, and have a bunch of grapes stamped on the cover. Moreover, the ½ and 1 lb. sizes may be nested to reduce the expense of packages. Prices are as follows:

1 lb.	4c each;	10, 35c;	100, $3.25;	200, $5.80;	1000, $27.50
½ lb.	3c "	10, 30c;	100 2.90;	250, 6.15;	1000, 23.50
½&1 lb. nest'd	7c "	10, 65c;	100, 5.80;	200, 11.65;	1000, 49.50
¼ lb.	3c "	10, 28c;	100, 2.65;	250, 5.65;	1000, 21.00

GLASS HONEY-PAILS.





While almost everybody prefers some kind of a pail to carry honey in, many also prefer, for liquid honey, a glass utensil to any thing else. Both objects have been secured by the pails shown in the cut above. The top screws on, like the cap of a fruit-jar. The bail turns down out of the way, when they are to be packed, or set on the shelves. Or we can furnish, if preferred, the Old Oaken Bucket pails, shown in the adjoining cut, except the 1½-lb. size, at the same price. Prices:

	Each	10 rates	100 rates	1000 rates.	Wght. of 100
½ lb.	5 cts.	40 cts.	$3.50	$32.50	55 lbs.
1 "	5 "	45 "	4.00	37.50	75 "
1½ "	6 "	55 "	5.00	47.50	95 "

The glassware on this page is in original packages, and marked at very close prices. We can not, therefore, hold ourselves responsible for breakage, and we can not break packages without charging extra. For instance, we can not give 50 tumblers or pails at 100 rates.

A. I. ROOT, Medina, Ohio.

HEADQUARTERS IN THE SOUTH.

FACTORY OF

BEE-HIVES, ETC.

EARLY NUCLEI AND ITALIAN QUEENS.

☞Tenth annual catlaogue now ready.

PAUL L. VIALLON, Bayou Goula, La.

☞In responding to this advertisement mention GLEANINGS.

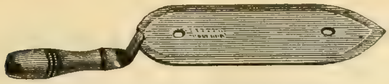
---

10 Per Cent Off

on prices given in price list. We make four grades of foundation.—heavy brood, light brood, thin, and extra thin, for sections. Send for free price list and samples. Special prices to dealers.

11tfd **M. H. HUNT, Bell Branch, Mich.**

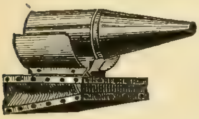
☞In responding to this advertisement mention GLEANINGS.



Bingham & Hetherington's Honey-knife.

Old reliable Bingham Bee-Smokers and Bingham & Hetherington Honey-knives. They last 8 years; never clog up or go out. Send card for free circular, descriptive of the best and cheapest tools to use.

THEY LAST.



ADDISON, VT.—Have one of your smokers, good yet, used 6 years. E. J. SMITH.

SILVER CREEK, KY.—I have had one of your smokers 3 years, and it is as good as new. T. W. HUDGENS.

ELM GROVE, MASS.—Have one I have used six seasons, good yet. F. M. TAINTOR.

SPRINGFIELD, O.—Your smoker good yet, and used four seasons. WM. W. BURRET.

LONE TREE, MO.—I have used one of your bee-smokers five years, and it is good yet. LEE EMRICK.

PRICES:

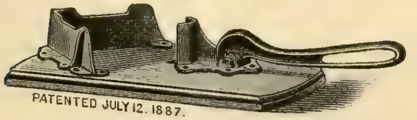
		By mail, postpaid.
Doctor smoker (wide shield)	3½ inch	$2 00
Conqueror smoker (wide shield)	3 "	1 75
Large smoker (wide shield)	2½ "	1 50
Extra smoker (wide shield)	2 "	1 25
Plain smoker	2 "	1 00
Little Wonder smoker	1¾ "	65
Bingham & Hetherington honey-knife		1 15

TO SELL AGAIN, apply for dozen or half-dozen rates. Address T. F. BINGHAM, or
9tfd BINGHAM & HETHERINGTON,
Mention GLEANINGS. ABRONIA, MICH.

SECOND-HAND.

We have on hand a quantity of 60-pound tin cans with screw top, cased, 2 in a case of wood, which we will sell at 50 cts. per case. They are the same as A. I. Root sells at 90 cts. per case, excepting having been once used. F. D. WOOLVER,
9tfdb Munnsville, Madison Co., N. Y.

A MACHINE FOR PUTTING TOGETHER ONE-PIECE SECTIONS.


PATENTED JULY 12. 1887.

IT WILL PAY FOR ITSELF IN ONE DAY'S USE.

No bee-keeper can afford to be without one. Send to your supply-dealer, or to Wakeman & Crocker, manufacturers. Price $2.50. Lockport, N. Y. Correspondence with supply-dealers solicited. 5-15d

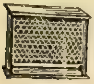
☞In responding to this advertisement mention GLEANINGS.

36-Inch Exhaust-fan Or Blower,

AT BERLIN, WIS., ONLY $25.00.

This is well worth $50.00, and a new one would cost upwards of $100. We must sell it at once, hence the above offer. It is used for drawing all shavings and sawdust away from your planer and saw-tables, and blowing them into the shaving-room. The one we offer above did the work for us for 8 years, and before it was shipped away was overhauled, rebabbitted, and put in excellent repair. There is an 8-inch pulley each side of the fan, an inlet on each side, and one outlet. **A. I. ROOT, Medina, O.**

FLAT-BOTTOM COMB FOUNDATION.



High side-walls, 4 to 14 square feet to the pound. Circular and samples free.

J. VAN DEUSEN & SONS.
5tfd *Sole Manufacturers,*
SPROUT BROOK, MONT. CO., N. Y

Japanese Buckwheat

ADVANCED.

After this date we are compelled to advance prices to the following: 1 lb., 15c; ½ peck, 75c; 1 peck, $1.25; ½ bushel, $2.25; 1 bushel, $4.00. We have sold over 100 bushels of seed, and have to pay more for what we now offer, at above prices; hence we are obliged to advance.

A. I. ROOT, Medina, O.

DADANT'S FOUNDATION FACTORY, WHOLESALE AND RETAIL. See advertisement in another column. 3btfd

Samples of the American Apiculturist

sent free. Also our price list of the best strain of pure Italian queens. Address 9tfdb
APICULTURIST, Wenham, Essex Co., Mass.

Green Wire Cloth,

FOR

Window Screens and Shipping Bees,

AT

GREATLY REDUCED PRICES.

The following lot of wire cloth is a job lot of remnants, and full rolls direct from the factory, that are **FIRST QUALITY**, and the pieces are of such variety of size as to furnish any thing you want. Price 1¾ cts. per sq. foot, for full pieces. If we have to cut the size you want, 2 cts. per sq. ft.

When you order a piece, and somebody else has got it ahead of you, we will substitute a piece the nearest in size to the one ordered, unless you specify in your order that you do not want us to substitute. The figures on the left indicate the width.

8	10 rolls, 67 sq. ft. each: 1 each of 66, 65, 64, 63, 63, 62, 54, 40, 27, 24, 22, and 4 sq. ft.
12	34 rolls of 100 sq. ft. each; 3 of 102 sq. ft.; 3 of 98, and 1 each of 97, 92, 75, 52, 48, 44, 43, and 28 sq. ft.
14	1 roll 14 sq. ft.
16	8 rolls of 133 sq. ft.; and 1 each of 132, 130, 130, and 128 sq. ft.
18	6 rolls of 147 sq. ft., and 1 roll each of 153, 150, 148, 145, 145, and 69 sq. ft.
24	22 rolls of 200 sq. ft. each.
26	93 rolls of 216 sq. ft. each, and 1 each of 215, 210, and 204 sq. ft.
28	46 rolls of 233; 3 of 224; 1 of 257 sq. ft.
34	16 rolls, 283 sq. ft. each; 1 each of 142 and 9 sq. ft.
36	5 rolls, 300 sq. ft. each; 1 each of 150, 150, and 150 sq. f.
38	21 rolls, 316 sq. ft.; 1 each of 633 and 300 sq. ft.
	1 roll, 42 inches, of 350 sq. ft.; 2 of 44 in., 366 sq. ft.; 1 of 46 in., 121 sq. feet.

THE FOLLOWING CLOTH IS BLACK.

40	5 rolls, 333 sq. ft. each.
42	9 rolls, 350 sq. ft. each.

A. I. ROOT, Medina, O.

JOB LOT OF POULTRY-NETTING.

Small Pieces at same Rate as full Rolls — ⅝ ct. per Square Foot.

Two or more pieces, 5 per cent off; ten or more, 10 per cent discount.

You will notice in this lot some with heavier wire than No. 19, and some with smaller mesh than two-inch. Both of these are worth more at regular prices than two-inch No. 19; but as it is a job lot we put it all in at the same price.

Inches wide.	Inch mesh.	No. of Wire.	By dividing the number of square feet in this column by the width in the first column, you can ascertain the length of each piece. These figures give the number of square feet in each piece.
24	2	19	140, 130; No. 18, 226.
60	2	19	495, 445, 335, 330, 325, 285, 280, 240, 220, 180, 165, 160, 140.
60	2	18	410, No. 17 wire, 195.
72	2	19	750, 720, 672, 636, 618, 558, 510, 438, 270, 252, 222, 168, 168, 162, 162, 156, 156, 48.

We know of nothing nicer or better for a trellis for creeping vines than the above netting. The 12 to 24 inch is just the thing to train up green peas, fastening the netting to stakes by means of staples. If the stakes are set in substantially, one each 12 or 15 feet will answer. When the peas are stripped off the stakes, netting and all can be rolled up and laid away until another season. A. I. ROOT, MEDINA, O.

ITALIAN QUEENS CHEAP.

Untested, in June, 90c; tested, $1.50; after July 1st, untested, 75c; tested, $1.25. Satisfaction guaranteed. 11-13d **R. W. TURNER, Medina, O.**

Bee-Keepers, Look Here!

To introduce our sections we will sell, during June, first quality of basswood sections at $3.00 per M.; second quality, $2.00 per M. Sample sections and price list free. **J. M. KINZIE & CO.,**
11tfd **Rochester, Oakland Co., Mich.**

☞In responding to this advertisement mention GLEANINGS.

Wants or Exchange Department.

Notices will be inserted under this head at one-half our usual rates. All ad's intended for this department must not exceed 5 lines, and you must SAY you want your ad. in this department, or we will not be responsible for any error. You can have the notice as many lines as you please; but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale can not be inserted under this head. For such our regular rates of 20 cts. a line will be charged, and they will be put with the regular advertisements.

WANTED.—To exchange Italian bees and queens for Holstein male calf, or a good 2-seat buggy or hack.
J. W. COLWICK,
9-10d Norse, Bosque Co., Texas.

WANTED.—To exchange Italian bees in Simplicity hives, for cottage organ, B. L. shot-gun, dry goods, or offers.
W. B. COGGESHALL,
9-10-11-12d Box 84. Summit, Union Co., N. J.

WANTED.—To exchange 400 settings of pure Wyandotte Brown Leghorn eggs for mismated and tested queens. I allow one setting for mismated and 4 settings for tested. New variety of strawberries wanted.
10–11d BENJ. ZURCHER, Apple Creek, O.

WANTED.—To exchange Italian bees and queens for comb fdn. for wired Simp. frames. Not less than 25 lbs. wanted. MISS A. M. TAYLOR,
11d Mulberry Grove, Bond Co., Ill. Box 77.

WANTED.—To exchange one Acme washing-machine, used some, one lawn-mower, new, for Italian queens or Partridge Cochin eggs or fowls.
M. LUDTMAN, Hannibal, O.

WANTED.—To exchange a Flobert rifle and one trio of fine American Dominiques, chicks one year old, for pounds of bees or 2-frame nuclei. Address
P. D. MILLER,
Grapeville, Westmoreland Co., Pa.

WANTED.—To exchange 250 colonies of bees, for horses, mules, wagons, buggies, and 4 h. p. engine, or any thing useful on a plantation.
21tfd ANTHONY OPP, Helena, Phillips Co., Ark.

WANTED.—To exchange Italian queens, bees by the pound, nuclei, full colonies, or eggs from Brown Leghorns, for beeswax, lawn-mower, baby-carriage, or type-writer (new). A. F. BRIGHT,
11tfdb Mazeppa, Minn.

WANTED.—Position by a bee-keeper, with large experience in queen-raising and honey production. Southern States preferred.
11d H. FITZ HART, Bayou Goula, La.

WANTED.—To exchange four small Yorkshire, and six Poland China pigs, registered stock, for bees by the pound, and queens.
11d ED. HITCHCOCK, Lockport, Niagara Co., N. Y.

WANTED.—To exchange eggs of B. Minorcas, Wyandottes, Langshans, and fowls, for bee-keepers' supplies, printing press (self inker), R. C. B. Leghorns, Incubator, or any thing useful.
E. P. ALDRIDGE, Franklin Square, Ohio.

WANTED.—To exchange Italian queens for one-pound sections or comb foundation.
11tfdb S. D. COX, Washington, Ind.

Black and Hybrid Queens For Sale.

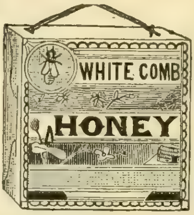
For the benefit of friends who have black or hybrid queens which they want to dispose of, we will insert notices free of charge, as below. We do this because there is hardly value enough to these queens to pay for buying them up and keeping them in stock; and yet it is oftentimes quite an accommodation to those who can not afford higher-priced ones.

For sale, 13 black and hybrid queens; blacks 25c each; hybrids, 40c each.
E. A. LIGGETT, Leesville, Ohio.

For sale, 25 hybrid and mismated queens, all young, and good layers. Will be put up in good cages, and safe arrival guaranteed. Price 40c.
W. A. PEEK, Hartwell, Hart Co., Ga.

For sale, 2 black queens, 35 cts. each; 6 or 8 hybrids at 50 cts. each; ready now.
J. A. KIME, Fairfield, Adams Co., Pa.

PASTEBOARD BOXES
FOR ONE-POUND SECTIONS OF
COMB HONEY.



THIS box has a bit of "red tape" attached to it to carry it by. It makes a safe package for a single section of honey for the consumer to carry, or it can be packed in a trunk, if he wants. It can be opened in an instant. The price of the box is 2 cts. each, set up; in the flat, 15 cts. for 10; package of 25, 25 cts.; 75 cts. per 100; or $6.00 per 1000; 10,000, $55. If wanted by mail, add $1.00 per hundred for postage. Colored lithograph labels for putting on the sides, two kinds, one for each side, $3.00 per 1000. A package of 25, labeled on both sides, as above, 45 cts. By mail, 30 cts. more. They can be sold, labeled on one side or both sides, of course. We have only one size in stock, for Simplicity sections. Sample by mail, with a label on each side, 5 cts. If you want them shipped in the flat, labels already pasted on, the price will be ten cents per hundred for putting them on.

Your name and address, and the kind of honey, may be printed on these labels, the same as other labels. The charge for so doing will be 30 cts. per 100; 250, 50 cts.; 500, 75 cts.; 1000, $1.00.

A. I. ROOT, Medina, Ohio.

"FABLES AND ALLEGORIES."

Much to my surprise, we have sold, during the last year, over sixty of these beautiful and valuable books. Although at the time I considered the book well worth $2.00, I didn't suppose there were many who would want to pay that price for a book of that character. When we take into consideration, however, that it is not only about as handsome a book as can be found in our bookstores, externally and internally, but that is also a book in which godliness and purity shine forth from every page, it is perhaps not so very surprising. The book is not, in one sense, a religious book, for the principles are taught indirectly, in the form of a little story, or fable, and sometimes the reader does not see at once the application; but when it bursts upon him he feels a spirit of thankfulness for having been taught perhaps the very lesson he needs, by way of a sort of parable. The book contains 512 pages and 350 engravings Many of the latter are some of the finest engravings that are to be found in modern print. The author of this work, Mr. Charles Foster, went to his heavenly rest during the past year; but it seems to me that his book will stand, much as the Pilgrim's Progress does, to help humanity through ages to come. Our new stock is even nicer than the last for they are in gilt binding; but the price will remain the same; viz., $2.00 each; two for $3.50, three for $1.65 each; five or more, $1.60 each. If wanted by mail, you will have to send 32 cts. extra, as the book is so very large and heavy. We can send it for five new names for GLEANINGS, you paying postage.

A. I. ROOT, Medina, O,

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CONVENTION NOTICES.

The June meeting of the Fayette County, Ohio, bee-keepers will be held at the residence of S. R. Morris, Bloomingburg, O., June 21, 1888.
S. R. **MORRIS.**

The next annual meeting of the Michigan State B. K. Association will be held at Jackson, Mich., in December, 1888.
H. D. **CUTTING**, Sec.

Black and Hybrid Queens For Sale.

For the benefit of friends who have black or hybrid queens which they want to dispose of, we will insert notices free of charge, as below. We do this because there is hardly value enough to these queens to pay for buying them up and keeping them in stock; and yet it is oftentimes quite an accommodation to those who can not afford higher-priced ones.

Having made arrangements to purchase queens to Italianize my apiary, I offer hybrid queens for 35c, or 4 for $1.00. This notice will not appear again. Take notice, and govern yourself accordingly.
L. H. **BROWN**, Bissells, O.

I have 5 hybrid queens, reared last fall, which I will send by return mail for 25c each, or the 5 for $1.00. G. D. **BLACK**, Brandon, Buchanan Co., Iowa.

I am thinking of Italianizing. I will have about a dozen black and hybrid queens, which I will sell for 50 cents each. **WM. I. ROBINSON**, Box 192,
Orangeville, Ont.

After requeening my apiary I have 4 black queens left (good layers), which I will send free to any address. Send cage. **ELMER E. GUY**,
Yardley, Pa.

For Sale.—2 mismated Italian queens, 50 cts. each; 2 black queens, 25c each. Safe arrival guaranteed.
GEO. W. MILES, Teepleville, Craw. Co., Pa.

O. R. Coe, Windham, Greene Co., N. Y., will pay 25 cts. for hybrid queens. 12-13-14d

UNTESTED QUEENS, of Heddon's improved strain, 75 cts each; two chaff hive frame nucleus with untested queen, $2.00. H. L. FISHER,
12-13-14d Milford, Kosciusko Co., Ind.

ITALIAN BEES AND QUEENS.
Full colonies of Italian bees $3 00
Tested queen .....$1 25 | Untested..... 75
C. WEEKS,
10-11-12d P. O. Money-order office, Clifton, Tenn.

Wants or Exchange Department.

Notices will be inserted under this head at one-half our usual rates. All ad's intended for this department must not exceed 5 lines, and you must SAY you want your ad. in this department, or we will not be responsible for any error. You can have the notice as many lines as you please; but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale can not be inserted under this head. For such our regular rates of 20 cts. a line will be charged, and they will be put with the regular advertisements.

WANTED.—To exchange Italian bees and queens for Holstein male calf, or a good 2-seat buggy or hack, or honey-extractor. J. N. **COLWICK**,
9-10d Norse, Bosque Co., Texas.

WANTED.—To exchange Italian bees in Simplicity hives, for cottage organ, B. L. shot-gun, dry goods, or offers. W. B. **COGGESHALL**,
9-10-11-12d Box 84. Summit, Union Co., N. J.

WANTED.—To exchange Italian queens, bees by the pound, nuclei, full colonies, or eggs from Brown Leghorns, for beeswax, lawn-mower, baby-carriage, or type-writer (new). A. F. **BRIGHT**,
11tfdb Mazeppa, Minn.

WANTED.—To exchange eggs of B. Minorcas, Wyandottes, Langshans, and fowls, for bee-keepers' supplies, printing press (self inker), R. C. B. Leghorns, Incubator, or any thing useful.
11tfdb E. P. **ALDRIDGE**, Franklin Square, Ohio.

WANTED.—To exchange magic lantern (Anthony's make), 55 views, and bees, for Orchestrone organ, style 44 E. L. **HEINE**,
Bellmore, Queens Co., N. Y.

WANTED.—To exchange 400 wide frames and half-story wide frames, tins on, Simplicity pattern, for young Italian queens, as early as the 5th of July. Who will send the first proposition? 12d
W. L. **COGGSHALL**, West Groton, N. Y.

WANTED.—To exchange 1 breeding-pen P. Rocks, 10 hens and cock; 1 pen Laced Wyandottes, 6 hens and cock; and full colonies bees in L. S. hives, for self-inking printing-press, or offers. Address
12d J. B. **MASON**, Mechanic Falls, Me.

WANTED.—To exchange one 50-inch planer tooth saw, and one plain Florence sewing-machine for best offers of 3-frame nucleus Italian bees, each with fertile queen. W. J. **ROW**,
12-13d Greensburg, Westm'd Co., Pa.

WANTED.—To exchange one Stanley Automatic honey-extractor, takes 4 L. frames, for thin foundation. T. P. **ANDREWS**, Farina, Ill. 12d

WANTED.—To exchnge untested queens for a Cyprian queen; must be from "vicious stock."
E. E. **GUY**, Yardley, Pa.

WANTED.—I will exchange supplies *now* for new crop of honey as soon as gathered. Write at once. **CHAS. H. SMITH**, Box 1087, Pittsfield, Mass.
12-13d

WANTED.—To exchange for fine poultry, pure Italian bees, bicycle, or offers, a Shipman automatic engine. A. B. **HERMAN**, 15d
Burnetts Creek P. O., White Co., Ind.

JAPANESE BUCKWHEAT

Advanced.

After this date we are compelled to advance prices to the following: 1 lb., 15c; ½ peck, 75c; 1 peck, $1.25; ½ bushel, $2.25; 1 bushel, $4.00. We have sold over 100 bushels of seed, and have to pay more for what we now offer, at above prices; hence we are obliged to advance.
A. I. ROOT, Medina, O.

DADANT'S FOUNDATION FACTORY, WHOLESALE and RETAIL. See advertisement in another column. 3tfbd

SMITH & SMITH.

WE HAVE ONE OF THE LARGEST

BEE-HIVE FACTORIES IN THE WORLD.

If you are interested in bees, send for our price list before *buying any supplies.*

GOOD GOODS AND FAIR PRICES.

SMITH & SMITH, (6tfdb) **KENTON, OHIO.**

In responding to this advertisement mention GLEANINGS.

Costs less than 2 cents per week.

THE CANADIAN BEE JOURNAL.

THE FIRST DOLLAR WEEKLY IN THE WORLD.

THE D. A. JONES CO., PUBLISHERS, BEETON, ONTARIO, CAN.

D. A. Jones is its editor, and this fact is a guarantee of its worth. It is thoroughly practical and contains weekly excellent articles from leading bee-keepers in the United States and Canada. Fifty-two numbers make a volume of 1040 pages. American currency and stamps at par. Samples free.

G. B. LEWIS & CO.

WE make the best Bee-Hives, the best Sections, the best Shipping-Crates, the best Frames, &c.

☞We sell them at the Lowest Prices.

Write for free Illustrated Catalogue.

G. B. LEWIS & CO.,
1tfdb WATERTOWN, WIS.

In responding to this advertisement mention GLEANINGS.

HEADQUARTERS IN THE WEST

FOR THE MANUFACTURE AND SALE OF

Bee-Keepers' Supplies.

CHAFF AND SIMPLICITY HIVES FURNISHED AT A GREAT REDUCTION IN PRICE.

Nice Sections and Foundation, Specialties. A full line of Supplies always on hand. Write for our new Price List. Cash paid for Beeswax. 16tfdb

A. F. Stauffer, Sterling, Ill.

☞In responding to this advertisement mention GLEANINGS.

HOLY-LAND QUEENS

A SPECIALTY.

Bees in Langstroth frames, or by the pound or nucleus, and bee-keepers' supplies.

8-13db **GEO. D. RAUDENBUSH,**
Office 445 Chestnut St. Reading, Pa.

☞In responding to this advertisement mention GLEANINGS.

Oliver Foster, of Iowa.

Italian bees, 60 cts. per lb. in July, to $1.00 in April. Pkgs. with queens, brood, etc., cheap. *No foul brood near.*

BEE SUPPLIES.—Best sections, cases, and hives. Catalogue free. Send 5 one-cent stamps for pamphlet, "HOW TO RAISE COMB HONEY,"—chuck full of practical information "in a nutshell."

4-15db Address OLIVER FOSTER, Mt. Vernon, Ia.

☞In responding to this advertisement mention GLEANINGS.

FREE! My catalogue of Bees, Queens, Apiarian Supplies, Standard Poultry (7 varieties), Japanese buckwheat, Green Mountain and Empire State potatoes. My stock is first-class. You should see my prices for 1888 before you order. CHAS. D. DUVALL,
5tfdb Spencerville, Mont. Co., Md.

☞In responding to this advertisement mention GLEANINGS.

ELLISON'S

FINE ITALIAN QUEENS

FOR REMAINDER OF SEASON OF 1888.

1 untested queen	- - - - - - -	75
3 " "	- - - - - -	2 00
1 tested "	- - - - - - -	1 50
3 " "	- - - - - -	4 00

Invariably by return mail, and safe arrival guaranteed.

W. J. ELLISON, Stateburg, Sumter Co., S. C.

☞In responding to this advertisement mention GLEANINGS.

THE OLD AND RELIABLE

Knickerbocker Bee-Farm.

(Established 1880.)

It will **PAY** you to send for our circular and price list of bees and queens before ordering elsewhere. Address **GEO. H. KNICKERBOCKER,**
Pine Plains, Dutchess Co., N. Y. Box 41.

☞In responding to this advertisement mention GLEANINGS.

TRY Brown Leghorns. You will never keep any other breed. 6d A. F. BRIGHT, Mazeppa, Minn.

DADANT'S FOUNDATION FACTORY, Wholesale and retail. See advertisement in another column. 3btfd

---

HOW TO RAISE COMB HONEY. See Foster's advertisement on another page. 4-15db

---

PURE ITALIAN QUEENS.

Untested, $1.00; tested, $2.00; select tested, $2.50; standard breeders, $3.00. Bees in cages or nuclei, $1.00 per lb. **R. H. CAMPBELL,**
11-16db **Madison, Morgan Co., Ga.**

☞In responding to this advertisement mention GLEANINGS.

HERE I COME

To say that E. Baer, of Dixon, Ill., has sold out his supply business to the Goodell & Woodworth Mfg. Co., who will sell V-groove basswood sections at from $2.75 to $4.00 per M. Other supplies correspondingly low. Samples and circular free. Address the **GOODELL & WOODWORTH MFG. CO.,**
3tfdb **ROCK FALLS, WHITESIDE CO., ILL.**

In responding to this advertisement mention GLEANINGS.

1888. 1888.

Pure Italian Bees and Queens

for sale in Full Colonies or Nuclei. Five L. frame nuclei a specialty. My queens and bees possess all the good qualities of the most desirable honey-bee. Send for prices. **WM. LITTLE,**
6tfdb **Marissa, Ill.**

☞In responding to this advertisement mention GLEANINGS.

MUTH'S

HONEY-EXTRACTOR,

SQUARE GLASS HONEY-JARS.

TIN BUCKETS, BEE-HIVES.

HONEY-SECTIONS, &c., &c.

PERFECTION COLD-BLAST SMOKERS,

Apply to CHAS. F. MUTH & SON,
CINCINNATI, O.

P. S.—Send 10-cent stamp for "Practical Hints to Bee-Keepers." 1tfdb

☞In responding to this advertisement mention GLEANINGS.

WRITE TO JOHN CALLAM & CO.,
LUMBER DEALERS, KENTON, OHIO,
—FOR PRICES ON—

BEE-HIVES, SECTIONS,
And General Supplies for Bee-keepers

New Factory. Low Prices. Good Work.
3-14 db

☞In responding to this advertisement mention GLEANINGS.

---

200 POUNDS OF BEES
at 80 cts. a pound. Italian queens 80 cts. each. Circular free. **S. C. PERRY,**
12-13-14d Portland, Ionia Co., Mich.

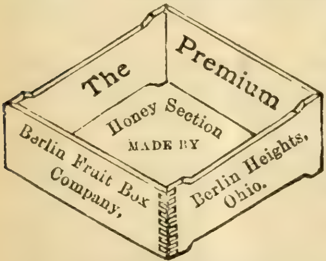
☞In responding to this advertisement mention GLEANINGS.

O The BUYERS' GUIDE is issued March and Sept., each year. It is an encyclopedia of useful information for all who purchase the luxuries or the necessities of life. We can clothe you and furnish you with all the necessary and unnecessary appliances to ride, walk, dance, sleep, eat, fish, hunt, work, go to church, or stay at home, and in various sizes, styles and quantities. Just figure out what is required to do all these things COMFORTABLY, and you can make a fair estimate of the value of the BUYERS' GUIDE, which will be sent upon receipt of 10 cents to pay postage,

MONTGOMERY WARD & CO.
111-114 Michigan Avenue, Chicago, Ill.

☞In responding to this advertisement mention GLEANINGS.

I HAVE a fine lot of pure Italians for sale. Tested queens, in May, $2.00; June, $1.50. Warranted queens, in May, $1.00; in June, 75 cts. One-frame nucleus, with tested queen, in May, with 1 lb. of bees, $3.00 each; extra frame, 50 cts. I have sold, this spring, $150 worth of bees and queens.
10-11-12d **C. E. JONES, Ostrander, O.**



Our No. 2 one-piece sections beat all in utility for the price—only $2.60 per M. for 4¼x4¼. Our No. 1 take the cake, and only $3.60 per M. Liberal discount on large orders.

Address as in cut.
10-11-12d

☞In responding to this advertisement mention GLEANINGS.

I WILL SELL one pound of brown or black bees for 80 cts. Queen to go with them, $1.25. Also one Pelham fdn. mill, 6-inch, for sale cheap, or exchange for wax. **THOMAS GEDYE,**
LaSalle, LaSalle CO., Ill.

☞In responding to this advertisement mention GLEANINGS.

Cash for Beeswax!
Will pay 22c per lb. cash, or 25c in trade for any quantity of good, fair, average beeswax, delivered at our R. R. station. The same will be sold to those who wish to purchase, at 27c per lb., or 30c for *best selected wax*.

Unless you put your name *on the box*, and notify us by mail of amount sent, I can not hold myself responsible for mistakes. It will not pay as a general thing to send wax by *express*.

A. I. ROOT, Medina, Ohio.

NEARLY THIRTY TONS
—OF—

DADANT'S FOUNDATION
SOLD IN 1887.

It is kept for sale by Messrs. T. G. Newman & Son, Chicago, Ill.; C. F. Muth, Cincinnati, O.; Jas. Heddon, Dowagiac, Mich.; F. L. Dougherty, Indianapolis, Ind.; B. J. Miller & Co., Nappanee, Ind.; E. S. Armstrong, Jerseyville, Ill.; E. Kretchmer, Coburg, Iowa; P. L. Viallon, Bayou Goula, La., M. J. Dickason, Hiawatha, Kansas; J. W. Porter, Charlottesville, Albemarle Co., Va.; E. R. Newcomb, Pleasant Valley, Dutchess Co., N. Y.; D. A. Fuller, Cherry Valley, Ill.; J. B. Mason & Sons, Mechanic Falls, Maine; G. L. Tinker, New Philadelphia, O., Jos. Nysewander, Des Moines, Ia.; C. H. Green, Waukesha, Wis.; G. B. Lewis & Co., Watertown, Wis.; J. Mattoon, and W. J. Stratton, Atwater, O., Oliver Foster, Mt. Vernon, Iowa; C. Hertel, Freeburg, Ill.; Geo. E. Hilton, Fremont, Mich.; J. M. Clark & Co., 1409 15th St., Denver, Colo.; Goodell & Woodworth Mfg. Co., Rock Falls, Ill.; J. A. Roberts, Edgar, Neb., E. L. Goold & Co., Brantford, Ontario, Canada; J. N. Heater, Columbus, Neb., and numerous other dealers.

Write for *free* samples, and price list of bee supplies. We *guarantee every inch* of our foundation *equal to sample in every respect*. Every one who buys it is pleased with it.

CHAS. DADANT & SON,
3btfd **Hamilton, Hancock Co., Illinois.**

☞In responding to this advertisement mention GLEANINGS.

---

100 Colonies of Italian bees in Simp. hives, for sale cheap. 6d A. F. BRIGHT, Mazeppa, Minn.

J. P. Caldwell, of San Marcos, Tex.

Pure Italian queens.	April.	May.	Jun. to Oct.
Select tested	$2 75	$2 25	$1 75
Tested	1 75	1 50	1 25
Untested	1 00	90	75
Six untested	5 00	4 40	3 75
Twelve untested	9 50	8 00	7 00

All queens will be shipped in cages which answer the double purpose of an introducing and shipping cage. Address J. P. CALDWELL, San Marcos, Tex.
7-18db Please mention GLEANINGS.

☞In responding to this advertisement mention GLEANINGS.

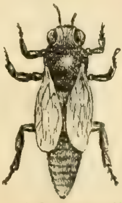
FOLDING BOXES.
Enclose your COMB HONEY in our Cartons. Prices Reduced for 1888. Sample 5c. 20 page Catalogue of Glass Jars, Honey Labels, etc., FREE. Send for it. Address
A. O. CRAWFORD, S. Weymouth, Mass.
10-21db

☞In responding to this advertisement mention GLEANINGS.

PURE ITALIAN BEES FOR SALE.
Full colony in A. I. Root's Simp. hive $6.00. Two-frame nuclei $3.00. Three-frame $3.50. Each nucleus and full colony to contain a tested queen and plenty of bees and brood, all on wired L. frames, combs drawn from fdn. Hives new, every thing first-class. To be shipped in June. Safe arrival guaranteed. I shall do by all as I would be done by. Address
Mention GLEANINGS. **N. A. KNAPP,**
7-10db **Rochester, Lorain Co., O.**

☞In responding to this advertisement mention GLEANINGS.

LOOK HERE!



I will sell Italian queens from one of A. I. Root's imported queens. One untested queen, $1.00. Tested queen, $2.00. Select tested queen, $3.00. I also give a box of my pure vegetable liver pills free with each queen. Address

DR. L. L. LOOMIS,
6-17b Pemberville, Wood Co., O.

☞In responding to this advertisement mention GLEANINGS.

HONEY COLUMN.

CITY MARKETS.

NEW YORK.—*Honey.*—No demand whatever for comb honey. Extracted is in fair demand. New Southern extracted arriving frequently, and sells at from 55@65c per gallon, according to quality. *Beeswax*, 24@26.

F. G. STROHMEYER & CO.,
June 11. 122 Water St., N. Y.

DETROIT.—*Honey.*—Best white comb honey in pound sections 14c, with but little first-class in sight, sales slow. *Beeswax*, 23@24.
Bell Branch, Mich., June 11. M. H. HUNT.

BOSTON.—*Honey.*—No change in prices. Sales very slow.
BLAKE & RIPLEY,
June 11. 57 Chatham St., Boston, Mass.

ST. LOUIS.—*Honey.*—Strained and extracted quiet at 4½@5½. Southern and Western, 5@6. Cans, 6½@7½. Choice white clover, comb, 12½@14½. Dark, less. *Beeswax*, 22½ for prime. Very light demand for fancy in barrels.

D. G. TUTT GROCER CO.,
June 11. 206 N. Commercial St., St. Louis, Mo.

CHICAGO.—*Honey.*—Not any new honey on sale as yet. Supply of old is gradually diminishing. Prices easy at 14@15c for the better grades.

R. A. BURNETT,
June 9. 161 So. Water St., Chicago, Ill.

KANSAS CITY.—*Honey.*—We quote 1-lb. white, glassed, 14; 1-lb. white unglassed, 15; 2-lbs. white unglassed, 13. Extracted, 7. Sales slow, no new on the market.

CLEMONS, CLOON & CO.,
June 12. Kansas City, Mo.

THE BEE-KEEPERS' REVIEW

for June is now out. The special topic is that of "Removing Queens near the Close of the Harvest." It is contributed to by such men as E. France, G. M. Doolittle, Prof. Cook, F. Boomhower, James Nipe, and Dr. Miller. It also contains a long editorial in which the editor gives in detail his experience in "feeding back" 13,000 pounds of honey to secure the completion of unfinished sections. "Feeding back" is to be the special topic of the July No.; and contributions on this subject will be gladly received. All such as are used will be paid for.

Price of the REVIEW, 50 cts. a year. Samples free. Back numbers can be furnished. 10tfdb

THE PRODUCTION OF COMB HONEY.

A neat little book of 45 pages; price 25 cts. The REVIEW and this book for 65 cts. Stamps taken, either U. S. or Canadian. Address
W. Z. HUTCHINSON,
613 Wood St. Flint, Mich.

☞In responding to this advertisement mention GLEANINGS.

BEAUTIFUL ITALIAN QUEENS,

from a select imported or a large yellow mother. Untested, $1.00; tested, $2.00. Select tested, $2.25.
12-13-14d W. A. PEEK, HARTWELL, GA.

IF you are in want of BEES or Bee-Keepers' SUPPLIES, send for our Catalogue. BEES CHEAP.
12-13d OLIVER HOOVER & CO., Snydertown, Pa.

THE IDEAL GLASS-FRONT

B. VEIL; postpaid, 75c. If not pleased, return and get your money. JNO. C. CAPEHART,
St. Albans, W. Va.

Bee-Keepers, Look Here!

To introduce my sections I will sell No. 1 white basswood V-groove 1-piece at $3.00 per M. No. 2, $2.00 per M. Price list free. J. M. KINZIE,
12tfdb Rochester, Oakland Co., Mich.

☞In responding to this advertisement mention GLEANINGS.

10 Per Cent Off

on sections from prices given in price list. We make four grades of foundation — heavy brood, light brood, thin, and extra thin, for sections. Send for free price list and samples. Special prices to dealers. M. H. HUNT,
11tfd Bell Branch, Mich.

☞In responding to this advertisement mention GLEANINGS.

BEES AND QUEENS IN MISSOURI.

READY TO SHIP NOW.

Pure Italian queens, $1.00 each. Tested, $2.00. Novice style extractors for Langstroth frame, $5.00 (to close them out). No foul brood near here.
12d S. S. LAWING, P. M., Henderson, Mo.

☞In responding to this advertisement mention GLEANINGS.

New Orleans Apiary.

I will mail guaranteed pure Italian queens for 75 cents each by return mail. Light, large, and prolific. Address
12d J. W. WINDER, New Orleans, La.
Care of L. B. Thompson, Jackson Pass. Agt.

Italian and Hybrid Bees

for sale. Full Colonies in 8 or 9 frame hives, with wire cloth on top, and bottom to confine the bees.

Hybrids, each	$5 00
Pure Italians, each	7 00
Tested Queens,	2 00
Untested Queens,	1 00

12tfdb JAS. McKERMAN,
Philipsburg, Center Co., Pa.

☞In responding to this advertisement mention GLEANINGS.

FOR SALE.—60 Italian Queens, bred from imported mothers, about one year old, at $1.50 each, or $1.25 by ½ dozen. Untested queens, bred from the same mothers as tested ones, $1.00 each. Safe arrival guaranteed.
12-13d C. F. UHL, Millersburg, O.

LOOK! BEAUTIFUL ONE-PIECE SECTIONS only $3.60 per thousand. Order at once from this ad. Or, if you wish T supers or other supplies cheap, write for circular. Address R. L. CLEGG, Peoria, Union Co., O. LOOK!

Oh Yes! We are giving away V-groove one-piece sections. Friends, if you do not believe this, send your address on a postal card to J. B. MURRAY, Ada, Hardin Co., Ohio. Oh Yes!

NOTICE.

Strong colonies of pure Italian bees, very gentle, and extra good workers: Ten-frame colony, L. frames, $7.00; eight-frame, Heddon, old style, with tested queen, $6.00. Three frame nucleus, with pure queen, $2.90. Safe arrival and satisfaction guaranteed on all queens, nuclei, and colonies.

QUEENS.

Untested, 90c; tested, $2.00; select tested, $2.50; extra select tested, $3.50.
12d W. BUESCHING, PAW PAW, MISSOURI.

☞In responding to this advertisement mention GLEANINGS.

2-STORY
L. Hive, 80c

We still have a few of those 2-story L. hives with 10 brood-frames, for 80c each, in crates of 5 or more. Who will have them? Speak before it is too late.
SMITH & SMITH, 6tfdb KENTON, OHIO.

☞In responding to this advertisement mention GLEANINGS.

26 EGGS, $1.50; 13, $1.00. Todd strain of Brown Leghorns. A. F. BRIGHT, Mazeppa, Minn.

GLEANINGS IN BEE CULTURE.

DEVOTED TO BEES, HONEY, & HOME INTERESTS.

Vol. XVI. JUNE 15, 1888. No. 12.

TERMS: $1.00 PER ANNUM, IN ADVANCE; 2 Copies for $1.90; 3 for $2.75; 5 for $4.00; 10 or more, 75 cts. each. Single number, 5 cts. Additions to clubs may be made at club rates. Above are all to be sent to ONE POSTOFFICE.

Established in 1873.
PUBLISHED SEMI-MONTHLY BY
A. I. ROOT, MEDINA, OHIO.

Clubs to different postoffices, NOT LESS than 90 cts. each. Sent postpaid, in the U. S. and Canadas. To all other countries of the Universal Postal Union, 18 cts. per year extra. To all countries NOT of the U. P. U., 42 cts. per year extra.

NATIVE BEE-KEEPING IN CUBA.

FRIEND POPPLETON DESCRIBES TO US A NATIVE CUBAN APIARY.

EDITOR GLEANINGS:—A few days ago, Señor Pedro Perez, who is as pleasant and friendly a neighbor as we ever had anywhere, offered to take me to see a native Cuban apiary, and I will describe the little I saw, so your readers will get some idea how what is known to commerce as "Cuban honey" is obtained.

The apiary contained 80 colonies, which is a very small one for Cuba. The hives varied from 6 to 12 inches square, inside measure, the large majority being 8 and 9, and 3½ feet long, made by nailing four boards, of the proper width and length, together, and a short piece of board over one end. So far they were very similar, except being longer, to the skeps, or gums, so many of which are still in use in our own Southern States. They were not stood upon end, as our people use them, but laid down on the side, the same as are the earthen hives in use in Cyprus and Syria. One entire end of the hives was left open, and this is the only peculiar feature there is which is different from methods in use in other countries, and which have already been described in the journals. The hives were laid on poles so they were about two feet above the ground, the poles being supported on crotches, old boxes, barrels, or any thing they could get. They were scattered around among some large banana plants, to protect from the sun.

At least once a year during the honey-flow in the winter, and sometimes also in August, every thing in the hives except the bees and the small amount of comb that may contain brood, is taken away and mashed and strained by the old-fashioned processes. The result is strained honey containing all the different grades and flavors that may have been gathered during the year.

It was really interesting to walk around among the hives and look directly into their open ends, and see the bees clustered so quietly on their combs; but I couldn't help thinking what an amount of fun there must be should they once get thoroughly to robbing. And, by the way, I find that bees do not rob so persistently here in the South as at the North, this being true, so far as I have observed, both in Florida and here in Cuba.

I am told that there are many large apiaries here in Cuba, of at least a thousand colonies each, all run on the same plan as is this small one I visited. I am also told that there are only three movable-comb apiaries on the island. The first was started by the Casanova Brothers, some five years ago; this one about two years ago, and one now under way by Mr. A. J. King, near the center of the island.

So far I am quite favorably impressed with the honey resources of Cuba; and after I have been here at least a year, so as to know from personal knowledge what they really are, I will try to describe them to the readers of GLEANINGS.

Havana, Cuba, May 18, 1888. O. O. POPPLETON.

Very good, friend P. Now, it seems that these Cubans might easily take to movable combs, even if they are going to continue taking honey in the same way they did, can't you show them their use in a few minutes, so they will all slip out clean and whole, without any cutting or mashing? Then they could put the brood-combs back again, thus avoiding the destruction of the immature bees.—In regard to the matter of robbing, if the colonies were all populous—that is, if the size of the hive were proportionate to the size of the colony, I am not sure but that the bees would defend themselves from robbers, may be as well as with small entrances. I remember eating honey when I was a child, that I was told came from Cuba; and it seems to me I should like some more of that same kind of honey now. It gave one a hint of pine-apples and bananas, or a flavor that one might readily imagine belonged to tropical regions and tropical flowers.

THE OPEN-SIDE SECTION.

STRONG TESTIMONY IN THEIR FAVOR.

MR. ROOT:—You may put me down as decidedly in favor of the open-side sections. Nearly all the honey I got last year was in that style of section, and it was certainly as nice as any thing I ever saw in sections. I believe the passageway at the sides secures a better filled and more firmly fastened comb than we shall ever have in the old style of section. My sections were filled full at the sides; and to break a comb out you would have to break it all to pieces. This would certainly be a great advantage in shipping—enough advantage to far outweigh the fancied difficulties to be met in using such sections. The Mr. Robertson mentioned in the *Review* must have used a thin section without separators. If the slots in such sections are cut deep enough to make a half-inch opening at the sides, I can readily understand his difficulty. A 1⅞-inch section with side slots ¼ inch deep, used with separators, has given me the most beautiful comb honey I have ever seen, and not a single section was built over at the sides. But I do not think this is the section for your T super. There will be too much propolis crowded into the crack between the sides of the sections, made by the folded T tin between. If the fold in the tin is made perfectly flat it may do reasonably well; but there will be more propolis than is desirable, even then. The wide frame holding one tier of sections, with a wood separator as wide at the ends as the outside depth of the frames, and 4¼ inches wide the remainder of its length, with vertical slots as you recently illustrated in GLEANINGS, page 267, is a perfect arrangement for the open-side section. Clamp these together in any manner you like best, and the new style of section is no more trouble than any other style. The one idea I wish to keep to the front is, that this section is more apt to be filled full and fastened all around. Perhaps the season favored me last year; but I shall know more about it next September.

Audubon, Iowa, May 21, 1888. Z. T. HAWK.

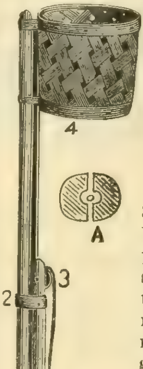
Friend H., you have given us just the kind of information we want. Telling us what you have succeeded in doing is worth ever so much more than theories or suggestions.

SWARMING AND ITS ATTENDANT CLUSTERING.

VARIOUS DEVICES FOR SECURING AND HIVING SWARMS.

ALMOST every bee-keeper has some arrangement which he uses for securing swarms, and which he likes best. A few are content to make use of any common implement, such as can be found "around home;" to wit, a large milk-pan, a clothes-basket, a dry-goods box, a large cloth, etc. The majority, of a more inventive turn of mind, prefer something of their own "get up." Some of these devices are very ingenious, and eminently successful in the hands of the originators, and probably will be no less successful in the hands of others. In continuation of last issue we illustrate two or three more.

The accompanying engraving represents an arrangement devised by Mr. S. W. Morrison, of Oxford, Pa. He describes it in his own language as follows:



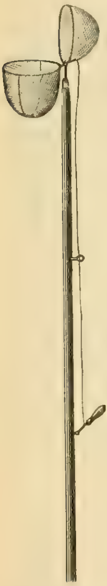
It is made of two pieces of pine, 16 ft. long, 2×2½ inches. One side of each is made flat, and a groove for a rope is made in the center of each, from top to bottom. The other side of each pole is rounded. At 3 is a pulley; set in at 1 is a narrow band of iron encircling the other pole; at 2 is another; at 4 is a ring staple on which a peach-basket is tied. The rope is fastened at 1, and runs over pulley at 3. You see the rest. A swarm 35 feet above the ground can be reached by it, and a little jar under the cluster secures the bees in the basket. It is very easily made, inexpensive, and I am sure there can be none better. I have used it two seasons very many times. S. W. MORRISON, M. D.

Oxford, Pa.

There is considerable machinery about this device; but in some localities, in the hands of certain bee-keepers it will no doubt prove quite an assistant. Observe that Mr. Morrison says a swarm can be reached 35 feet from the ground. No other device with which we are acquainted will secure a swarm that distance, without climbing. With this the apiarist is supposed to stand directly beneath the swarm. By drawing on the rope, at 3, the peach-basket can be elevated to the desired height. Where the swarm is so situated as to permit jarring it right in the mouth of the basket, perhaps the position of the basket is about right. Sometimes a swarm will refuse to enter the open mouth of a basket; but if the same be inverted the bees will crawl through the splints. During swarming times, bees seem to be partial to cavities perforated by holes. This is one of the peculiar features of the Shepard swarming-device which we have advertised for several years back. Some have imagined that it would be better to have Shepard's box pivoted, so as always to retain a perpendicular; but for reasons given, it is not very material whether the basket or the box is presented to the bees with its mouth upward or not. On the whole, perhaps the basket as mounted on the pole in the foregoing engraving is best for general purposes.

Such an implement as the one above represented would hardly be of very great advantage in those apiaries where there is only low-growing shrubbery, or, at most, small fruit-trees in the vicinity. In such apiaries we want something a little lighter and a little easier to handle. The Shepard swarming-box, Pierce's apparatus (see last issue), the hiving apparatus illustrated by our friend W. F. Clarke, pages 651-2 for 1887, or one of the two following, may be used to very good advantage.

WIRE-CLOTH-CAGE SWARMER.



A few weeks ago, while we were looking over our collection of photographs and tin-types, illustrating the various devices, machines, etc., pertaining to bee culture, we ran across a little tin-type showing the accompanying device. No name was attached, so we are unable to give credit to the inventor. As it contains an idea worth developing we here illustrate it. It is simply a pole ten or twelve feet long, having two wire-cloth cones at one end, and hinged so as to be operated at the opposite end of the pole. The cut makes plain the idea, though it is evident that the little handle should be inclined downward instead of upward, in order to complete the inclosure. The inventor has doubtless had some trouble with swarms nicely clustered suddenly decamping. To forestall any such mishap he designed this implement. At various times we have been successful in securing a swarm. While we were bringing it toward the hive where we proposed locating it, the bees took wing and left us holding nothing but an empty limb or a hiving-box in our hands. The accompanying implement is so constructed that, when a majority of the bees are caged, they can not get away, and the minority wiil remain clustered, or follow their captive brothers and sisters.

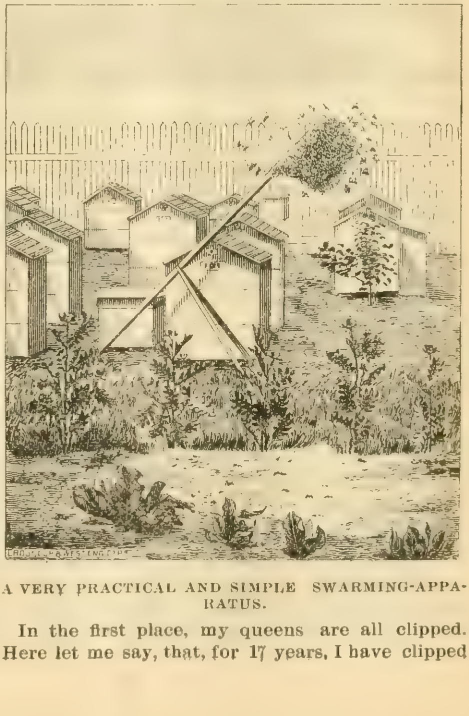
THE CORN-POPPER SWARMING-APPARATUS.

This idea suggested or rather resurrected the corn-popper—an idea which we had in mind years ago. By turning to our old catalogue for April, 1882, we found a little note under Counter-Store Goods to the effect that they are one of the best swarm-catchers ever devised. The note is still running in the price list, and we think we will let it stay there.

This morning the bees in the home apiary got the swarming mania in earnest. Two had already come out and been hived, and three more were in the air. Fortunately they clustered separately. Two of them were hived by the old way. The third was secured by means of the large 25 cent corn-popper which we took hastily from the counter store. The lid of the popper was thrown back, and the popper itself was crowded up gently against the lower end of the cluster. The bees very soon rolled over and over each other until the popper was level full of them. The wire-cloth top was thrown over, and snapped shut. We did not know whether we had secured the queen or not. It did not matter much, for half or two-thirds of the cluster was confined in the popper, and the queen, if outside, together with the remaining bees, would cluster around their captive comrades. We thrust the handle down into the soft dirt near where the bees were flying quite thick, and the popper was thus supported a couple of feet from the ground, where the bees could get at them. We then left them for an hour or so. When we returned, all the outside bees were clustered around the popper. They were now in such shape that we could carry them where we pleased, and hive them where we pleased, which we did with entire success. But more anon on this subject of the corn-popper. The accompanying article, together with the engraving, represents our friend A. E. Manum's method of hiving swarms.

MANUM'S METHOD OF HIVING SWARMS.

Agreeably to promise I herewith give you my method of catching swarms and hiving bees. The accompanying cut which you have made illustrates the method of setting the catcher for the bees to alight upon. It also shows a few of the Chapman honey-plants.



A VERY PRACTICAL AND SIMPLE SWARMING-APPARATUS.

In the first place, my queens are all clipped. Here let me say, that, for 17 years, I have clipped all my queens, and can see no good reason why I should not continue the practice.

I will first give a description of my swarm-catcher; and as there is no patent on it, all are at liberty to make and use the same. It is simply a wire-cloth cage fastened to a pole with two legs, so attached to the pole that they can be set out or in, something like a tripod. The lower end of the pole may be sharpened, to stick in the ground, in order to steady the catcher, and to prevent it from being tipped forward by the weight of the bees.

The head, or cage, is 10 x 10 inches square by $1\frac{3}{4}$ thick, and is covered on each side with wire cloth. It is made in two parts, and hinged together, so as to open and close. When closed it is held together by a small hook. One of the parts of the head is fastened to the pole, forming a catcher, as may be imagined by referring to the cut.

The head is made of $\frac{7}{8}$ x $\frac{3}{8}$ stuff, hence is very light. I usually furnish 8 or 10 of these catchers to each of my apiaries.

Now, as we have our catchers all made and ready for use, by having them distributed through the apiary in order to have them handy, we will proceed to catch that swarm that is just coming out. We will take this catcher here, and open it; hold it to the entrance, and catch what bees we can; close it, and lay it on the ground near by, and watch for the queen. As she comes out, catch and put her in the catcher with the bees. Now set up the machine in some shady place, if convenient. The buzzing of the bees and the scent of the queen will soon attract the swarm, when all will alight on the catcher, where they may remain until we are ready to hive them; and if we fear another swarm may issue before these are hived, they may be covered with a sheet.

See! there comes another swarm! run with another catcher, and proceed as before, and set this catcher some distance from the first, if we wish to hive the swarms separately. Although the first is covered with a sheet, it is safer to set them apart. In this way we can catch all the swarms that issue, and not be bothered by their clustering together, providing they do not all come out together.

When all have clustered, we may proceed to hive each separately, or two or three together, by taking up a catcher and bees, and carrying them to the hive previously prepared. We shake off the outside bees in front of the hive, and then open the catcher, and shake out the queen and bees, and the work is done.

If two or more swarms issue at one time, we proceed to catch the few bees and queens as before, using a catcher for each swarm (hence the necessity of several catchers); and, as is usually the case when more than one swarm issues at one time, they will mingle and cluster together. In such case we set the catchers near together and await the results. If more bees settle on one catcher than on the others, we shake them off from this one; and on rising they will almost always divide up equally, each swarm clustering around its respective queen.

If we are too long a time in catching the queens and setting up the catchers, the bees may commence to cluster on a tree. In such a case it is better to set all the catchers under the cluster; that is, in the tree; and with a pole with a hook on the end, shake the bees off. Upon rising they will very likely locate their queens; if not, shake them off again, and they will soon all separate, each swarm clustering with its queen, to the great delight of the apiarist.

There are many other ways to use these catchers that will suggest themselves during the swarming season. **A. E. Manum.**

Bristol, Vt., May 19, 1888.

Our friend Mr. Manum is quite an extensive apiarist. In a private note we received from him, he said he was then locating his seventh out-apiary, so our readers may judge somewhat of the amount of experience he necessarily has had among bees, and of his ability to judge of a simple and practical swarming-apparatus.

Just here it occurs to us that there are two ideas worth bringing up. The first is, that, if the queens are not clipped, the queen herself will usually be found on the outside of the cluster, or near the bottom end, for, it is said, bees will never hang to the queen. If, therefore, the corn-popper cage or other receptacle be pushed gently against the lower end of the swarm, you are likely to secure not only the larger portion of the bees, but the queen also; and in this event your swarming is practically done. The other idea is this: After these wire-cloth cages, such as the corn-popper and Manum's arrangement, have been used a few times for catching swarms, they will acquire the scent of the laying queen, and of former swarms. The catcher will, in consequence, be more readily accepted for clustering by succeeding swarms. In time these cages will have little bits of wax adhering to them, and these, also, form no small part of the attraction.

Instead of making the wire-cloth cage as friend M. described in his article, we find it would be cheaper and better to use the corn-popper, which we have tried so successfully. A small hole is to be bored into the long projecting end, and the popper screwed firmly into place. For putting us on the track of this idea, friend Manum will be properly rewarded. The device can be made very cheaply. See Special Notices.

SWARMING AT THE HOME OF THE HONEY-BEES.

This morning (June 9th), we were exceedingly annoyed by the frequency of swarms, coming out simultaneously. Although we hived them successfully, we longed for one of Manum's swarming-devices. We accordingly vowed this forenoon that we would get the foreman to construct one. This afternoon, as we stepped into the apiary, sure enough there was one already. Then, indeed, we wanted to see a swarm come out, in order that we might try it. But no swarms were so accommodating. If we had not wanted them to come out, or it had been Sunday and time to go to church, we have no doubt but that they would have come out in large force. To-morrow is Sunday, and it is quite likely that the implement will be brought into requisition, if the weather is suitable.

LATER.

In accordance with the wise counsels given by our bee-keepers on the Sunday question elsewhere, and in consideration of the fact that we had five swarms on Friday and seven on Saturday, we thought best to so arrange the Root force and church-going so that stray swarms could be secured if they came out. Accordingly, of this committee, A. I. Root was detailed to watch the bees from after breakfast till church time; Ernest from then till time to attend Sunday-school; John during the session of Sunday-school, after which Ernest was to again take the field. As it was quite windy and threatening, only one swarm issued during the day, that we know of, but it took two of that committee to finally hive it, as it was a very perverse and contrary swarm—not staying where it was put, and clustering just where we didn't want it.

To-day is Monday. It is raining, and consequently there is no swarming.

A SUNDAY QUESTION.

SHALL THE BEE-KEEPER STAY AT HOME FROM CHURCH TO HIVE SWARMS?

THE following timely question was received two or three weeks ago from one of our regular contributors; and as we had already sent out our usual batch of questions, we thought best to send this along singly, obtain the replies, and insert it by itself. The question is answered by our corps of contributors to the Question Box department. It reads as follows:

Wishing to do what is right in the sight of God, and wishing my bees to swarm naturally, what shall I do on the Sabbath in swarming time—shall I put on a drone-trap that day, making me lots of work, and annoyance to the bees; let the bees take care of themselves, going to the woods if they wish, while I am at church from 10 A. M. to 3 P. M., or stay at home and hive the bees as they swarm?

I think it right and proper to care for the bees at any time when they need care.

H. R. BOARDMAN.

As the question reads, I would divide it and let the last sentence be its own reasonable reply.

L. C. ROOT.

I clip all my queens. We occasionally have mixing of swarms and the loss of a few queens; but the satisfaction of resting quietly on the Sabbath compensates the occasional loss tenfold. Wishing the bees to swarm naturally, they can be attended to next day, as they will come out again if the weather is fair, unless the queen got lost.

PAUL L. VIALLON.

So far I have held that, in the light of the Bible, I was justified in staying home from church four or five Sundays during swarming time, to care for the bees, if such care was necessary. This does not require one-fourth the time of actual work on Sunday that one cow requires during the year, yet no one thinks it wrong to care for cows on Sunday. Even friend Root lately rejoiced on Monday morning, for a little timely work done on Sunday.

G. M. DOOLITTLE.

I would stay at home and hive the swarms unless I could secure the services of some one who would not go to church any way. I do not believe God wishes us to let valuable property go to waste for the sake of attending public religious services. I think God may be worshiped as sincerely at home as in a church, and that when church-going becomes a task, inflicted on one's self from a sense of duty, it ceases to be worship. "The spirit, not the letter."

JAMES A. GREEN.

I would not lose the bees, any more than I would leave my ox in a pit. It is wrong to lose property. It is our duty to keep and use it well. Why not clip queens' wings, then let one person stay at home each Sabbath (taking turns), and as a swarm comes out catch and cage the queen and put her back? This is very little work. Then on Monday, attend to each of these colonies. It occurs to me that each person must settle such questions for himself.

A. J. COOK.

We do not believe in drone-traps; but they may be of some use when a man wishes to leave the bees for a few hours. If *we* were in *your* place, we would stay and watch the bees for the one or two Sundays that it may be necessary to do so. "What man shall there be among you, that shall have one sheep and if it fall into a pit on the Sabbath day, will not lay hold on it, and lift it out? Wherefore it is lawful to do well on the Sabbath day."—MATT. 12: 11, 12. If any Christian has a better authority than Christ on this matter let him bring it forward.

DADANT & SON.

A difficult question to answer, especially in the space allowed. It is just possible that your two premises are incompatible, and that it may not be right for you to wish your bees to swarm naturally. If nothing but natural swarming were possible, then I should not let them go to the woods, and I doubt if I should do any hiving on Sunday. Using queen-traps is one of the plans I might try. At the most, I should not do more on Sunday than to catch and cage the queens which would be clipped.

C. C. MILLER.

When an ox or ass falls into your well on the Sabbath, don't let him drown, but pull him out and take good care of him, for he is one of the jewels intrusted to your care, otherwise you will be adjudged a "lazy servant." When your bees swarm on the Sabbath, hive them and take care of them as you must do of your pigs, chickens, and other stock. I am not afraid of the wrath of the Lord, for he is no narrow-minded individual, and he recognizes my prayers, even when hiving a swarm of bees on the Sabbath.

CHAS. F. MUTH.

I stay at home and watch the bees, on the ground that I am one of those that "esteem every day alike." If I want more time for social, religious, or intellectual uses, I drain more on the week days. It is true, it is best for all of a community to be free from labor at the same time, for the purpose of united work in other directions. In part to prevent the annoyance of having to watch closely when only one or two swarms in a day are expected, I crop all my queens' wings, so the swarms at least return if they do come out.

R. WILKIN.

Cage your queens Saturday, and let them loose Monday. We have over 400 colonies of bees, which are kept in six apiaries—five of them away from home. We do all the work, clip our queens, make our new colonies by dividing the old colonies, and have no natural swarms. We see our bees once a week or ten days, and only one apiary in each day, so it is Sunday all the time with us. If we were obliged to go back to natural swarming I would go out of the bee-business. I can not see any advantage in natural swarming, and it is a perfect bother any way you can fix it. E. FRANCE.

Father Langstroth is not only a religious Christian, but 50 years a minister of the gospel, and one of the best souls, naturally, which I have ever met; and, if I am not in error, he considers this hiving of swarms on Sunday a necessity, so to speak, and advises such practice. JAMES HEDDON.

"Stay at home and hive the bees." I know a bee-keeper in a small Illinois town who keeps his bees on a small lot, with plenty of near neighbors. He persists in attending church during the swarming season. During the services the neighbors will call him out; then all over the congregation there will be smiling, and nudging of one another, and whispering, "His bees are swarming." The services and the neighbors are disturbed. A minister came to me, saying, "What shall I do with my bees Sundays? I will not let any of my family stay at home." I told him, when he went to church to put up queen-guards, and remove when he returned. He had only five or six colonies. He did so, and lost none. If stock breaks out of inclosures, such as horses, cattle, or pigs, the owner cares for them. Why not bees? We should use good common sense in deciding questions relating to religious observances, as well as in other walks of life.

MRS. L. HARRISON.

It seems to me the *best* way for the brother to get the right answer to his question is to consult his "guide-book" and go to the Being he is anxious to please, with a pure heart and an acceptable service, for direction, and he will not be led astray. I am quite sure that no one has any right to engage in any business that necessitates the breaking of the Sabbath in its pursuit. "Remember the Sabbath day, to keep it holy."

This is my way: Keep all queens' wings clipped. Place the hives six feet or more apart, with the front on a 2×2-inch-square piece that lies on the ground, so if they should swarm the queen can crawl back when the swarm returns. Being obliged to set the hives closer together this year, I am raising them up so the queen can not crawl back. A glance through the apiary, on returning from church, will discover the queens, and tell which colonies have swarmed, and the queen can be returned. DR. A. B. MASON.

I think the time has come when we should condemn all Sunday bee-keeping or work with bees. The gain spiritually, with a proper observance of the Sabbath, ought to abundantly compensate for a small pecuniary loss, if there is any, but usually the money loss is upon the other side. The man above, wishes to do right, but at the same time wants his own way about the bees swarming. He doesn't want to know of any better way of managing bees, but assumes his way as best, and then wants us to help him out when his boat begins to sink. If this man will set his hives close to the ground, so the queens can crawl in when the swarm returns (queens' wings clipped, of course), go to church and not think of his bees, he will probably gain more than he loses. Monday he can repair damages; now and then a queen lost, now and then a little mixing-up. I have always practiced artificial increase, and have never worked with bees on Sunday. Those of your readers who profess to regard the teachings of science more than revelation should understand that science teaches that more and better work can be done in six than seven days in the week, and that better health and longer life is the result of a weekly rest-day.

P. H. ELWOOD.

"Happy is he that condemneth not himself in that thing which he alloweth."—ROMANS 14:22. I think no iron-clad rule should be given in this case. It is the privilege of every one who has committed his life wholly to the Lord to have within him the present influences of the guiding Spirit, assisting him to decide correctly.

Bees are stock; and God never forbade the proper care of stock, even under the Jewish dispensation, still less under the Christian (Luke 13:15; Matt. 12:11). "Howbeit there is not in every man this knowledge," and to satisfy the feelings of our fellow-beings is sometimes of more importance than a few swarms of bees. Getting a horse out of a well into which he had fallen was allowed; and it involves more work than caring for the swarms of a large apiary. The alternative is the same in each case—lose the horse—lose the bees. Those who wish to befog the question, instead of clearing it up, will at once inquire about the farmer's field of hay that might get wet. Any candid heart can see that there is a wide difference between providing against a *possible* loss and providing against a *certain* loss.

Seeking to do the will of God, as above, I have often turned and walked away from my apiary, leaving swarms to go to the woods at pleasure. [Be still, murmuring heart! down there! God has given me so many bees that I shall hardly miss half a dozen swarms.] At other times, when circumstances were different, I have spent nearly the whole day in earnest work taking care of swarms. Another way I have used a little is to instruct a person left at home how to sprinkle the clustered swarms every half-hour with the fountain pump, thus keeping them till my return. When only a few swarms threaten, the drone-trap would answer I think. E. E. HASTY.

ADVANTAGES OF A SQUARE FRAME.

FRIEND DOOLITTLE CONTRASTS THE GALLUP FRAME AND THE LANGSTROTH, ETC.

WHEN I first commenced to keep bees I adopted the Langstroth frame, taking it for granted that such was the best frame for this locality, as apparently the largest number of bee-keepers of that day were using it, taking the country throughout. At the same time, I had a few box hives that were about one foot square inside, which I intended to transfer to Langstroth frames, as soon as swarming was over. As the swarming season approached, I was surprised to find that my bees in the square box hives had increased much faster than those in the shallow frame, and eventually cast swarms nearly ten days in advance of them. At this I began to look around to see if I could not find a frame hive of nearly the shape of these box hives. After considerable investigation I settled down on the square form of frame as used by Elisha Gallup, and since known as the Gallup frame, although it is only the L. frame in a square form. I still used the long shallow frame for one year after deciding on the Gallup, to see if my conclusions were correct; and at the end of the season the advantages of the square frame became so convincing that I discarded the shallow frame altogether. Later on

I worked different bee-yards, in which were different kinds of frames of the shallow pattern, none of which could I so manipulate as to get the same amount of bees in a given time with the same strength of colony that I could produce with the square form of frame. Especially in case of weak colonies in the spring does this frame prove advantageous in building them up. In order that brood-rearing may go on successfully, the temperature inside of the cluster must be at least 90 degrees Fahr., as I have proven many times with a self-registering thermometer, and a small colony can keep up that heat only when they can cluster in the most compact form. This is in the months of April, May, and the first half of June, which I am speaking of; for later in the season the difference in favor of the square frame is not so marked, when the weather is warm right along.

A year or two ago I received a hive from one of the advocates of a still shallower frame than the Langstroth, with the request that I try it. This I did to please the party; and although I found that the claims made regarding the hive in all other respects were verified, yet in the respect of building up in the spring I can do nothing with it. I have no doubt but that these shallow frames are all right for latitude 39° and south, where Mr. L. lived when he invented them; but for our northern latitude, where we have frosts till into June, I can not think that they are as good. On this morning (the 4th of June) the drops of dew formed into ice on the tops of my tin hive-covers were as large as the end of my little finger, as they were also on the morning of June 2d.

Again, last year I put a large swarm in another hive of the shallow pattern, this being still shallower than the other, and this spring both came out in good condition upon taking out of the cellar; but to-day neither are any thing but nuclei as compared with those which were of equal strength two months ago on Gallup frames. On the first day of June a bee-keeper with whom I have had years of correspondence, but whom I had never seen, living in the western part of the State, called on me. He has some 300 or more colonies of bees, and has made bee-keeping a profitable business, although not very often heard from in the bee-papers. He uses a frame the same size of the Gallup, one way, and ¾ inch larger the other. He told me that, when the Heddon patent hive first came out he thought that he would try it, for he was not just satisfied with the amount of surplus room that the top of his hive allowed. The first season he hived 14 large swarms in these hives, and all went along "swimmingly" till he set them out of the cellar in the spring; and in spite of all he could do he lost 12 out of the 14 before June, and the two left were only remnants of colonies, while he lost only three in his other hives, out of 300. Being determined to succeed with the Heddon hive he again filled them in swarming time the past summer; but the result this spring was the same as before, and he did not see but that he should have to give them up on account of not being able to "spring them" in these hives. It is natural for bees to cluster in a round form, and this they must do to economize the heat to the best advantage, and I am more than ever convinced, from the past 16 years' experience, that the long shallow frame will not do for this frosty locality, if we would work our bees to the best advantage.

AN ITEM.

This morning, as I was out looking at the drops of ice, spoken of above, with the mercury standing at just 32° (the freezing-point), I came back to the house under the apple-trees, which still have some bloom left upon them. I stopped a moment, and what should I hear but a bumble-bee above me gathering honey? I watched him some time go from flower to flower, putting his tongue down into the flowers, the same as a hive bee would do with the temperature at 60°. I passed on to other trees, and saw quite a number in the different trees getting honey, or at least they acted as if they were doing so. The time of day was half-past four, and the sun was just beginning to gild the tree-tops. Evidently they thought it was "the early bird that catches the worm;" but what about that point that nectar is never secreted in a frosty night, as we have been informed? and how could these bees stand the freezing air when our honey-bees could not stand it out of the hive a single minute without being chilled so as to become lifeless to all appearances? G. M. DOOLITTLE.

Borodino, N. Y., June 4, 1888.

Admitting your reasoning, friend D., I think there are quite a few who secure all the results you mention, and yet use the L. frame. Suppose you put in the chaff-packed division-boards, so as to reduce the brood-chamber of an L. hive until it is about as wide as it is deep. Then we have a square space to be occupied by the bees, only it is nearly twice as long as it is deep and wide. It has one advantage—or, at least, I think so—over your brood-chamber and your square Gallup hive, inasmuch as it is shallower. If we want to pack the bees up snug and warm, we do not want the brood-chamber too deep up and down. My experiments with both the American and Gallup frame (and I have used both) convinced me that they were too deep for the very purpose you mention. Well, our brood-chamber in the contracted L. hive has the advantage, as I think, of giving us a cube of smaller dimensions than if we used the Gallup frame, only this cube is nearly twice as long as its depth and width. This extra space is not, however, empty space. It is filled with comb; and, according to my notion, it should be pretty well filled with stores also. When a colony is in the shape of a sphere, as you suggest, the circumference of the sphere touches the top and bottom of the brood-nest and three of the sides, with sealed stores on the fourth side, and it is just according to my notion for wintering or springing. Of course, the sealed stores would be in one end of the L. frames, while the brood and bees will occupy perhaps over half of the other end. As a rule, we should hardly want so much stores by the first of June; but as we frequently have a dearth of pasturage in our locality, even during May and June, I think it is a pretty good state of affairs. I suppose, of course, you mean that this *present season* you had frosts in June. We have had them here also, but it is a very unusual thing indeed. We usually get some strawberries by the last of May here; but this year, strawberries and every thing else are fully two weeks later.

BEETLES.

THE MAY, OR JUNE BEETLE, AND THEIR NEAR RELATIONS.

G. W. COSTELLOW, Waterboro, Maine, sends me two beetles, which, as he says, "Come forth just before night or dark, and are as numerous as bees in an apiary of thirty colonies. Their hum is like that of a swarm of bees—so much so that my little girl, noticing it, said, 'The bees are mad,' and called her little brother away, that he might not be stung. Please tell us about them in GLEANINGS."

These beetles, were they twice as large, and brown instead of yellow, would be quite like the common May or June beetle, which is so common all over our country. Indeed, they belong to the same genus. This is *Lachnosterna tristis*, and the June beetle is *L. fusca*. The May beetle is very destructive to grass, corn, etc., while in the grub or larval state. This one may also do similar damage, but I do not think it has attracted attention by such ravages. The May beetle has a similar habit of swarming in trees just at nightfall. Both do some mischief at such times by eating foliage. This one (*L. tristis*) sometimes eats grape foliage. These both belong to the same family as the terribly destructive rose-chafer, which has the same habit of swarming on foliage, and devouring it in such a wholesale fashion as to make it one of our most dreaded pests. It comes upon grapevines, rosebushes, peach-trees, etc., in such overwhelming numbers as to do tremendous damage. It is well that none other of this very numerous family of insects has a like propensity.

All of these beetles lay their eggs in the ground. It is likely that all the grubs feed upon grass or other plant roots. A. J. COOK.

Agricultural College, Mich., May 30, 1888.

Friend Cook, that reminds me that, in hoeing potatoes, our boys found quite a number of large round bugs. I suppose they are beetles of some kind. Well, the boys wanted to know if I wish them to stop and kill these bugs. I told them I would not kill any bug or worm until I had evidence that it did harm. From what you said, however, it just occurs to me that these big bugs may be the parents of the white grub that eats the corn and potatoes. Can you tell me, from this brief description, if I had better let the boys kill the bugs, or shall I mail you one of the bugs first?

IMBRICATED SNOUT WEEVIL.

I wish to know, through your paper, what the name of these bugs is. They are being blamed for a good deal of damage that is being done to the young corn. They are found right around the hill under the surface; and when you find one of these in a hill of corn it is completely ruined, being cut off right under the surface of the ground, so it will not sprout again. They seem to work at it the worst just as it comes through the ground.

Plainview, Ill., May 14, 1888. JOHN L. COX.

Prof. Cook replies as follows:

The beetle sent by John L. Cox, Plainview, Ill., is the imbricated snout-weevil—*Epicærus imbricatus*, Say. Like all the weevils or snout-beetles it has a long snout. The slim wheat-weevil and the plum-curculio are other examples. Riley, in his 3d Missouri Report, says that this weevil cuts off the twigs of apple, cherry, and gooseberry, and does no little harm. It seems to be confined to the Western States in its mischief-making. Prof. Comstock, in Report of Commissioner of Agriculture, 1879, reports this beetle as injurious to onions, radishes, cabbages, beans, melons, cucumbers, squashes, corn, and beets. It seems from the account of Mr. Cox that it is no longer confined to the country west of the Mississippi, but also works in Illinois. Prof. Comstock reports it as a serious pest in the gardens of Tennessee. Mr. Cox says it destroys the corn, cutting it off just under ground.

This little beetle is covered by imbricated scales, hence the specific name. It is three-tenths of an inch long, and varies in color from gray to dusky brown. There are white spots on its wing-covers.

I see no way to fight this enemy except to catch and kill. This seems tedious, but might pay well.

A. J. COOK.

Agricultural College, Mich., May 31, 1888.

FARM WORK VS. BEE-KEEPING.

MRS. CHADDOCK CONTROVERTED.

ON page 349 I read an article from the pen of Mrs. Chaddock, reviewing Question 41 of a previous issue, and taking sides against the majority of the answers as returned; and I confess that I am astonished that so practical a person as Mrs. C. appears to be should decide that bee-keeping is harder work than is farming.

Mrs. C. asks, "How can anybody think bee-keeping easier than farming?" Because the majority of people not only *think*, but also *know*, that it is. "Holding two leather straps" and pulling a team "gee" and "haw" goes but a short way toward making a living on a farm. Did Mrs. C. ever hold the handles of a heavy breaking-up plow in a rocky field all day? or did she ever pick and load stones upon a stone sled, and, after they were hauled where they were needed, build those same large stones into a wall? or build rod after rod of a five-rail fence, handling the heavy timber all day long? If she can answer yes to all of these questions, and still persist that she would rather do such work than handle bees, then I should say that bee-keeping is not her forte.

"Holding two leather straps" is all right as to cutting down and raking up the grass; but when this grass has to be made into hay, and stowed away in barns, and then fed to stock, and the stock tended and cared for as it should be, there is more work connected with the business than the mere act of driving the team.

If Mrs. C. should work for me, and load and unload as much manure in a day as I should expect a man to do, I think she would not find that "hauling manure is as easy as any thing."

I have not written this in any spirit of controversy, but simply to give my views on the subject, as I understand it. I know what it is to work a farm, and I also know what it is to handle bees; and my opinion is just this: If you keep a large amount of bees, and have no help, you may be just as busy as any one on a farm ever is; but as to this work being as *heavy*, or as calculated to make a person as sore or thoroughly "fagged out" as will holding a heavy plow, picking stones, or making fence of heavy stuff, I do deny; and I have done enough of all this to know what I am talking about.

Smyrna, Me., May 7, 1888. R. E. TIMONEY.

A. B. MASON.

BIOGRAPHICAL SKETCH, FURNISHED BY THE DOCTOR'S GOOD WIFE.

THE subject of this sketch was born 25 miles southeast of Buffalo, in the town of Wales, Erie Co., N. Y., Nov. 18, 1833. His father was born in Massachusetts, and was of English, Scotch, and Irish descent; was a soldier in the war of 1812, and assisted in the capture of Fort Erie. His maternal grandfather was killed by the Indian allies of Great Britain, in the same war. His maternal grandmother was of the old Knickerbocker, or Dutch ancestry.

Mr. Mason had six brothers older than himself, two younger, and two sisters. All were raised on a farm, and the brothers are all farmers. The only living sister is the wife of a farmer, and lives at Emporia, Kansas. His mother and grandparents all died in their 83d year, and his father was about 90 at his death.

DR. A. B. MASON, PRESIDENT OF THE NORTH AMERICAN BEE-KEEPERS' ASSOCIATION.

In De Kalb Co., Ill., when about 17 years old, Dr. Mason taught his first school, for $14 per month, and "boarded round." In relating some of the incidents in connection with that school, he says: "The three last teachers preceding me were turned out by the "big boys," the last being thrown through the window with the window shut. Of this I knew nothing till the morning I went to begin school. I made up my mind to teach that school or somebody would get hurt, and so I told the director. I was hired for three months, but taught four, and was offered $40 per month to teach the same school the next winter. A majority of the scholars were older than I was."

At the close of this school, young Mason went to Beloit College, Wisconsin, and attended two terms, his chum and friend being the now well-known Gen. Warner, of Warner "Silver Bill" notoriety. With the exception of the above, and a few terms attendance at an academy in Wyoming, N. Y., when he was either at or near the head in all his classes except grammar, his school education was obtained in the common district school.

In his 19th year Mr. Mason joined the Baptist church of his native town, and has ever since been proud to be known as a Christian and a Baptist. Just previous to his 22d birthday, at the earnest solicitation of his parents, he commenced the study of medicine with the family physician, working, as opportunity offered, to earn money to help pay expenses.

During the winter of 1857 Dr. Mason attended medical lectures at the University of Michigan, at Ann Arbor. At the close of the lecture course he went to Illinois to spend the summer, and to complete his medical studies. The following autumn he returned to the old home in New York, and on his 25th birthday was married to a Miss Clark. In the spring of 1859, in company with several families from New York and Illinois, the newly married couple went west and located at Irvington, Kossuth Co., Iowa, 40 miles west of the present home of Mr. Eugene Secor. The colony with which they went having broken up, in 1862 they moved to Waterloo, Iowa. Here Mr. Mason commenced the practice of dentistry, which he has followed to the present time. He was secretary and treasurer of the Iowa State Dental Society, and president of the Northern Iowa Dental Association for two years. For four terms he was secretary and a member of the school board of the city in which he lived, and was one of the originators of the city library, and librarian for several years.

For years Dr. Mason was an active, if not the most active member of the church to which he belonged, being at one time superintendent of the Sabbath-school, church clerk, a trustee, and clerk of the board of trustees. He was a leader in Sabbath-school work at home and in adjoining counties. One year he was secretary of eight different organizations, four of them religious.

Dr. Mason has always been known as an earnest temperance worker, and has had his life threatened twice by saloon-keepers. He still delights in being a thorn to them.

His youngest child is a daughter 16 years old, and the oldest is 27. His children, like himself, use no tea, coffee, tobacco, or liquor in any form.

In 1869, a brother, in moving, left two colonies of bees with him till a more favorable time for moving them. He soon became interested in them, and, seeing an article in a newspaper that year about Mrs. Tupper's success with bees, wrote to her, making some inquiries, which were kindly answered. He at once became a subscriber to the *American Bee Journal*, which he has taken till the present time.

The same year, Mr. Mason became a member of the Central Iowa Bee-keepers' Association, and the next year was elected secretary, which position he held until he left the State.

In 1873, owing to frequent attacks of rheumatism, and an increasing desire to make bee-keeping more of a specialty, Dr. Mason quit the office practice of dentistry, and the proceeds of the apiary have materially aided in furnishing "bread and butter" for the wife and children.

In 1874, the family residence, a large new house, with all its contents, was consumed by fire. There were eighteen first-class Italian colonies of bees in the cellar. On learning of the loss, some members of the Central Iowa Bee-keepers' Association offered to make him a present of fourteen colonies as a starter.

The same year we moved to Ohio, which has since been our home. In the summer of 1875 we lived in a suburb of Cincinnati, and made and sold the Murphy honey-extractor, most of them going to Southern States.

In 1876, Dr. M. was chosen secretary of the Buckeye Union Poultry Association, and held the position for four years.

In the winter of 1879 he tried what has since been known as the "Pollen Theory," and, with the experience of that and succeeding winters, he has been made a firm believer in that theory. This was several years before any thing was said about it in the bee-journals.

In 1881 Mr. Mason succeeded in getting the Tri-State-Fair Association at Toledo to offer fair premiums for the display of the products of the apiary, and the display has increased in attractiveness each year; and last fall it was said the display was the most attractive of any on the grounds. He was appointed superintendent of the department the first year, and still holds the position.

During the years 1882 and 1883, when but little was generally known about foul brood, his apiary of 75 colonies was badly infected, nearly every colony having it in 1883, and he has frequently stated the loss was from 300 to 500 dollars; but he cured it that year, and has had none since.

For several years he has been a member of the Michigan State Bee-Keepers' Association, and in 1886 was made an honorary member.

At Chicago, in Nov., 1887, on his 54th birthday, Mr. M. was chosen president of the N. A. B. K. Society.

Early in October last, he made what he called a "new departure" in bee-keeping. Having become satisfied, in theory, that it was of no special benefit for bees to be flying after frosts had destroyed all honey-producing blossoms, he concluded to prepare a few colonies for wintering, and place them in the cellar as soon as there came a killing frost. On the night of Oct. 15th there was a hard frost. On the night of the 19th he placed the prepared colonies in the cellar. On April 27th, 1888, the bees were taken from the cellar, after undergoing a confinement of six months and eight days, and were in good condition, having lost in weight 7¾ pounds on an average.

The other colonies, put in the cellar in November, were weighed at the same time, Oct. 19, and, when taken out with those put in Oct. 19, were found to have lost in weight, on an average, over 11 pounds.

During the past winter he has delivered two addresses at farmers' institutes, and one at a horticultural meeting, the subject being "The Benefits of Bee-keeping to the Agriculturist and Horticulturist."

Mr. Mason has been chosen to superintend the Apiarian Department of the Ohio Centennial Exposition, to be held at Columbus from the 4th of September next, till Oct. 19th.

He is now serving his third term as assessor of the precinct in which we live, having been re-elected by an increased majority. MRS. A. B. MASON.

Auburndale, Ohio.

Well, my good friend, we all owe you a vote of thanks. I have many times wondered how it was that your good husband had developed such a wonderful faculty for making everybody feel pleasant at any sort of a public meeting. You have given us the key to it all. He has been under drill, lo these many years. He has, in fact, been drilling himself to be a *servant*, for I presume little if any pecuniary reward has ever been received for the arduous duties he is expected to take upon himself. Most people under like circumstances would have said right out, as some of the good "pillars" do occasionally at our church meetings: "Well, to come right down to the point, dear brethren, I *won't serve*—so there!" "Whosoever will be chief among you, let him be your servant." Now, Dr. Mason has been the servant, and I hope he will not get cross if I say that, at most meetings I have attended lately, he has bidden very fair to be chiefest among us, and nobody felt jealous of him either. Friend M. may thank God for his physical strength and endurance; but very likely he has his aches and pains, and seasons of feeling as though he would much rather stay at home, as well as the rest of us. I told you once of the happy faculty which Dr. Miller has of pleading for Christ, when opportunity offers. One might think that, from his eloquence, he was agent for some large establishment, and that he had something to *sell* before he got through with you. Well, Dr. Mason seems to have this same happy faculty; but the individual who thinks that by and by he will discover that the doctor has some sordid motive, will find himself mistaken. The inspiring motive, and the great fountain-head from which all this zeal, loving good nature, and willingness to help, spring forth, is from his devotion to the Lord Jesus Christ. May God grant that more of us may learn to be constantly seeking *first* the kingdom of God and his righteousness!

POLLEN AND POLLEN GRAINS.

PROF. COOK TELLS US SOME WONDERFUL THINGS ABOUT THEM.

POLLEN is the male element of plants, and corresponds to the sperm-cells of animals. When we remember that no plant-ovule can possibly develop without the fructifying influence of these pollen grains, we understand how necessary they are in the vegetable economy.

Pollen grains are very small; often appearing, when shaken from the plant, like a cloud of dust. Their color is exceedingly varied. Some are almost black, others nearly white, though for the most part they are either orange or yellow. Their form is also extraordinarily diverse. Some are spherical, others cucumber-shaped; still others crescent form, and yet others remind us of a dumb-bell. We have in our college library a book at least three times as large as the A B C, devoted entirely to pollen grains. In this volume are many pages used exclusively to illustrate the varied forms and markings of different kinds of pollen grains. So characteristic are the forms of pollen grains that we can often tell what plants our bees have been visiting, by simply dissecting their stomachs. The sculpture, or external markings of pollen grains, are quite as varied as their general forms. Some are smooth, others rough; some are ridged, others grooved; some are pitted, while others bristle with sharp points (Fig. 1). Often, as seen in the figure, these projections vary in the same pollen grain.

The pollen grains are developed in the anthers, or ends of the stamens of the flowers. In order to fructify the ovules, these grains must lodge on the soft stigma, or end of the pistil. But frequently the stamens and pistils are in different plants. In other cases, where stamen and pistil are in the same blossom, "Nature shows her abhorrence of close fertilization" by causing the stamens and pistils of a flower to mature at different times. Hence the great necessity of bees and other insects for the performance of this important work in vegetable economy. They must carry the pollen to the stigma. Where any such union is so important, and yet in the nature of things accidental, Nature is always very lavish. Thus the female fish simply drops her eggs, or roe, in the water. The milt from the male passes into the same medium. Here the union must be accidental, and depends on favoring currents; hence the eggs and sperm-cells of fish are numbered by millions. For a like reason the pollen grains of plants are exceedingly abundant, and far outnumber the seeds. Thus in the Chinese wistaria, a beautiful climbing bee-plant, illustrated in my Manual, there are, says Goodale, seven thousand grains of pollen to about thirty ovules. Hassall estimates that the number of grains in a single plant of rhododendron is seventy-two million six hundred and twenty thousand.

Each pollen grain is a single cell, having two coats—an outer, extine, and an inner, intine, for its wall. It is the extine which is beset with projections, in rough pollen grains. The extine is also frequently perforated, as seen in the figure. In this case the intine lines these holes, or openings.

As previously shown in an article in GLEANINGS, the contents of each pollen grain is protoplasmic matter. This is rich in albuminous material. Indeed, the chemical composition of pollen is not greatly unlike that of some of our grains, as oats, barley, etc.

When the pollen grain lodges upon the stigma, if the latter be in a right condition, as shown by its adhesive secretion, the pollen grain increases somewhat in size, and soon a tube, sometimes more than one, pushes out through a perforation of the extine. This tube passes through the whole length of the style till it reaches the ovule which is to be fertilized. The time required for the descent of the pollen-tube varies from a few hours to two or three days.

A. J. COOK.

Agricultural College, Mich.

Thanks, friend Cook; but as you do not tell us very much about this wonderful engraving, which we reproduce from an article in the *Bienen Zeitung* of September last, we have taken the following description from the author, Parson Schonfeld. It is no more than fair to say, however, that our admirable translation was made by Mr. Cowan, of the *British Bee Journal*.

> The percentage of nitrogenous matter which these excreta contain is very high, seeing that they are largely mixed with broken pollen grains, as mentioned above. The exterior membrane of pollen, called the exine, is known to possess a great resisting force. Besides, the stomach of the bee, much less the stomach of the larvæ, is unable to make all pollen grains discharge their contents of protoplasm. For the discharge of the protoplasm in the natural way takes place, in most cases, not by the exine simply bursting, but through special valves in the exine, which remain closed as long as the pollen is kept dry. In my last article I gave a sketch of an unbroken pollen grain from a pumpkin blossom to which I have to direct attention once more. It shows the lids of the valves. When the pollen grain is moistened, the protoplasm swells and raises the valves, as shown in the figure at *a* until at last the lids fly back, and the protoplasm discharges itself at *b*. But this mechanism often fails to act in the stomach of the bee, and the pollen then remains closed, and is of no use to the bee. This is proved by the large number of whole pollen grains frequently found in the rectum of bees.

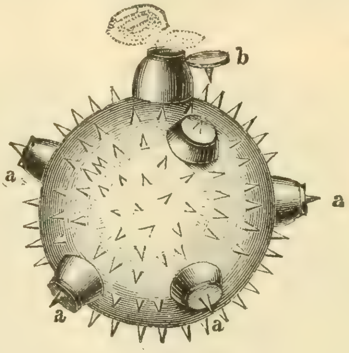


FIG. 1.

The above is very well so far as it goes; but neither our good friend Parson Schonfeld nor Prof. Cook has told us as much as a natural-born Yankee like myself would like to know about this wonderful picture. Those pot-lids with a sharp spike on, suggest to me the safety-valve of a steam-boiler; and at *b* we have something very much like the escaping steam. I suppose we are to understand that this is protoplasm. Well, if every pollen grain from a pumpkin-blossom is like this one, and nature produces them by the million, what an awful big lot of work nature has to do! We sometimes hear people talk about cheap labor; but who can contemplate the amount of labor that is performed in constructing even a single one of these strange pollen grains? Now, are we to understand that that whole big sphere is full of protoplasm, and that, when one of those lids flies off, the whole contents boils out like yeast out of a jug when the cork is forced out by pressure? If this is so, I presume that every time we eat bee-bread we swallow millions of these wonderful pollen-cells; and this protoplasm is probably nutritious to human beings as well as to bees, providing it gets uncorked so it can come out. But where it is not gathered by the bees, but falls on to the stigma, it then bursts open, when it gets sufficiently ripened, and this aforesaid protoplasm plays some important part in producing the seed of the plant. Who has not, some time in childhood, stood with open mouth and contemplated the wonderful phenomenon of life, bursting up within the tiny little seed? And every grain of wheat that goes to make up the millions of bushels that are to be seen in our great grain-elevators, contains all the machinery to make a little plant. Here, again, we have an example of cheap labor that makes the handiwork of the most successful of the human family sink into utter insignificance. If I am not very much versed in microscopy, it seems to me that I have quite a talent for telling what I do *not* know; or, for that matter, directing thought to these things that none of us as yet know very much about.

CAT-TAIL POLLEN.

FROM 60,000 TO 90,000 SEEDS FROM A SINGLE HEAD.

FROM the Science column of Frank Leslie's *Magazine* I take the following:

> In a bulletin of the Torrey Botanical Club, of New York, the Rev. Thomas Morony furnishes an account of the well-known cat-tails of our swamps. Their productiveness is enormous. He finds that a single cat-tail of average length, say 5 inches, will yield 60,000 perfect seeds, and larger ones may give 90,000. The seeds have a hairy perianth which enables them, balloon-like, to float long distances through the air. The plants often appear in swampy places long distances away from where they are known to grow, and this has been attributed to seeds being brought in mud on the feet of water-birds; but in view of Mr. Morony's observations, such a guess is not necessary to account for their appearance. There are but three species native to North America: *Typha latifolia*, *T. angustifolia*, and *T. Domingensis*. This grows in Mexico and the West India Islands, and is an enormous cat-tail. A form found by the Rev. E. L. Greene had stalks 15 to 18 feet high and a cat-tail of three feet. The natives of New Zealand make bread of the pollen of some species of the *Typha* family; and in the State of New York the leaves have been used for baskets, and for the bottoms of chairs. Mr. Morony does not mention that the pollen is inflammable, and is used as a cheap substitute for the pollen of lycopodium.

Here is pollen with a vengeance—enough to make bread of! Well, well! I do not know what will come next. Mr. Doolittle does not mention cat-tails as the source from whence any of his pollen comes. Perhaps it blooms too late in this country to be of any use in spring. I know they are ready to be gathered in September, but I do not know when they are in blossom. Who does? I know, too, that they snap and crackle when held in a blaze.

I had written this far when I remembered that Jessie had some cat-tails tied with red ribbon and hung up in the parlor. I took one of them, and my magnifier. I rubbed some of the brown dust from the outside, let it fall on white paper, and examined it. At first I thought it must be the seeds; but I pulled out some of the silk, and there in the center of about 40 sprangles of the finest gossamer I saw a coarser middle stem, and on it was the seed, resembling a small grain of rye somewhat, though without the indentation. If all these gossamer threads were fastened at the outer end, holding the seed inclosed, it might resemble a balloon somewhat; but none of these do; they all spangle out as soon as pulled loose; and these little brown wing-looking shells, they are the husks that held the pollen, I suppose. I know they can not be the pollen itself, because the shape of pollen grains does show under this magnifier. They look as fine sand does to the naked eye. MAHALA B. CHADDOCK.

Vermont, Fulton Co., Ill., April 21, 1888.

VEILS FOR BEE-KEEPERS.

ESPECIALLY VEILS AND THE ACCOMPANYING HEAD-GEAR OF OUR APICULTURAL SISTERS.

EDITOR GLEANINGS:—I am very much surprised to see that you, as one of the leading educators of bee-keepers in this progressive age, should for a moment think of advising in your widely read journal the wearing of such a head-gear as is mentioned on page 296; and as for a photograph, you might turn to that of P. Benson, p. 107, 1887.

Of course, if Mrs. Axtell has tried the straw bonnets, and likes them, it is all right for her to give a description of them in GLEANINGS, and people often use something that they do not quite like, as a make-shift in lieu of something better. But you must know that such a rig would prove a "bug-a-boo" in connection with bee-keeping, to most ladies. Now, I am far from being "stylish" myself, but the very idea of one of those bonnets is uncomfortable to me; and if we had to rig up the visitors who come to look at the bees in "Welcome Apiary" in that manner, I am afraid that the people passing by would think there had been an escape at the insane-asylum, which is not far distant, for some of the inmates are very fantastic in their dress. It is the almost universal idea, and one which I believe to be erroneous, that, if a lady wishes to engage in bee-keeping, she must dress in a very outlandish fashion.

On my way home from Chicago I met one of the members of the convention, and he said to me: "I should like to inquire how you dress to work among the bees," and remarked that he had always thought that women who kept bees were inclined to be peculiar any way, and seemed quite surprised when I said that I neither wore gloves nor short dresses. I usually wear a dress made of some kind of cotton goods, both because it will wash and because the bees do not get tangled in it as badly as in woolen goods, and have it made quite plain, so that it will not catch on to things about the apiary. I used to wear a white sun-hat; but last year, while Mrs. Hains was at Medina she saw the linen hats that you keep, and brought one home for me to wear. I like it better than any thing else I have ever seen for that purpose. It is light and cool, and I hardly realize that I have any covering on my head, even in the hottest days. I wear it tipped pretty well back on my head, so that it does not leave a red crease across my forehead; and as I wear a veil made of black netting, long enough to come pretty well down on the shoulders, then draw it rather tightly and tuck it in between the buttons four or five inches from the neck of the dress, it holds the hat in place nicely, even in a windy day. When not needing to use a veil, I draw it up and tuck it around the crown, so that it looks as though it were intended for a lace scarf, for trimming the hat.

Mrs. Axtell prefers wire cloth because she gets far less stings than when she wears the brussels net. I have been working among the bees constantly in the summer time for seven years, and for two years have taken charge of the queen-rearing department of Mr. Hains' apiary, which consists of from eighty to over one hundred colonies, and have never received a sting on either my face or neck, through from the outside of the veil, as the broad-brimmed hat keeps the veil in the right place.

Perhaps you may think that, if I were to work among hybrids, the result would have been different. Last fall I went out into Geauga Co. to help put some black and hybrid bees into winter quarters; and although we had so little time to do the work that we did not pay much respect as to their preference for being kept quiet, and the bees were as thick as she describes, still I met with the same result. So I wish to give my advice to those women who have to work among the sweet little busybodies, day after day, which is: If you wish to be comfortable and also look reasonably well, send to A. I. Root for a linen hat, of which you may see a cut in GLEANINGS, page 1001, 1886, and a description of the same by Ernest on page 30, 1887, and I have no doubt that he will send you one by mail for a small sum. Now, Mr. Root, if you will kindly give the amount that you can send them for by mail, you will oblige me as well as your other readers.

Although it is too early to make any definite statement about the condition of the bees, so far as I know they have wintered very well.

Bedford, O., Apr. 16, 1888. DEMA BENNETT.

Many thanks for suggestions, my good friend. There is a little circumstance connected with the point you criticise, that it may be well to mention. In that article you allude to, I did not intend to say that Mrs. Axtell had the best arrangement; and when I saw how the compositor had set it up, I was quite emphatic in saying that it would never do to let that go out in that shape; but some way or other it *did* go to press, and the journals were all printed in just that way. I felt very much inclined to make a fuss about it; but we concluded to wait and see whether anybody noticed it. No one has written about it that I know of, except yourself; and as our blunder was the means of bringing up this excellent article of yours on the subject of head-gear, I think we will not need to feel so badly about it after all. Thanks for the kind words you say in regard to our hat for bee-keepers. The idea belongs entirely to Ernest; and although we have never given them a place in our price list, such a trade has sprung up for them that we have already sold several gross. See Our Own Apiary elsewhere.

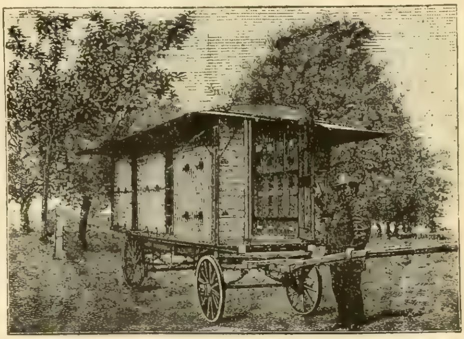
A BEE-HIVE ON WHEELS.

DESIGNED TO BE MOVED ABOUT AS PASTURAGE DEMANDS.

THE following description of a portable apiary (with cut) from the Leipzic *Bienen-Zeitung* will surely interest our readers. The very excellent translation is furnished by L. F. Dintelman, Belleville, Ill. To him also we are indebted for calling our attention to the matter. The writer of the article is Gustave Sigle, of Feuerbach, near Stuttgart. He says:

Scarcity of pasture, as well as the proximity of the Stuttgart sugar-refinery, forced me to travel. With many strong colonies this is always attended with trouble and expense; for hives that can be handled by one or two men will give the laden wagon a rather shaky load; and as to nailing the hives together, this never suited me.

I had, therefore, four-story hives constructed, which were, however, when fully colonized, too heavy, requiring the help of four to six men to readily handle 100 to 150 colonies. The loading, placing in the field, and reloading on the wagons, always cost me too much in time and money and labor; I therefore decided upon the construction of portable bee-hives. As the two wagons, completely furnished, successfully accomplished the first five trips, I was besought on all sides to give the following description of the wagon, which I do to the best of my ability:



A HOUSE-APIARY ON WHEELS.

The wagon is a so-called skeleton wagon, with free axles, and has, consequently, a level platform. There is, for the better handling of the colonies, an offset 30 cm. deep, in the platform center, running to within 1.25 cm. of the front end, to allow for the clearance of the front wheels.

There are side and cross springs, to give us smooth riding as possible, and to avoid sudden jarrings. A good brake is also attached. The frame is thoroughly braced (to prevent all contractions whatever) with strong iron rods. The tongue is easily removed. The roof is constructed similar to a car-roof, the supports being formed of angle iron. The hives need only to be pushed, like drawers, in between these supports.

The height, from bottom to roof, is 1.55 m., 2 three-story normal hives and one one-story hive just filling this space. The length is 4.10 m., allowing the placing of 3 four-stories with a space of 26 cm. between same. The two entrances on the front and on each side prevent the commingling of the bees.

The four-stories, which are not removed from the wagon, are double-walled, being 1.20 m. long. The aisles, of 26 cm. on the sides, are closed immediately back of the entrances, which are divided in its center, to give an opening to each colony. The width of the wagon is 2 m. The hives, being 50 cm. wide, leave a space of 1 m. in the center, which proves sufficient to work in. At the front and rear, a glass door with blinds is attached. The entrance is easier, on account of the depression in the platform from the rear, where also is placed a stair of two risers. For protection against rain, an awning made of sheet iron, painted, and provided with spouting, is attached, which can be easily taken apart in 8 pieces, and removed before starting on a journey. For the protection of the bees and the wheels, a cloth is stretched from the entrances to the ground. The bees are ready for moving at all hours; the ventilators are opened, the doors closed, and the horses are hitched to the wagon, and a journey of 10 or 20 miles is begun, stopping to-day at rape fields; a week later, on blooming meadows; later on, by white clover and esparcette fields, and then in acacien and linden tracts.

We are very much obliged to you, friend D.; and we may remark that this subject was brought up in the earlier volumes of GLEANINGS, and several articles appeared in regard to the matter. I have never been able to hear, however, that such an apiary has ever been made a success practically. We should be very glad indeed to know how our friend Gustave Sigle has succeeded. My impression is, that such a wagon would be found quite useful whenever it is found that honey is coming in largely, say within ten or twenty miles of the location of any good-sized apiary; and this matter can be readily determined by having a colony or two at different points, as above mentioned.

A MAN WHO SELLS INDIVIDUAL RIGHTS FOR A PATENT BEE-HIVE.

AND A GOOD MAN NOTWITHSTANDING.

FRIEND ROOT:—I have carefully read your article in answer to Rev. Mr. Langstroth, on the subject of patents, and I want to assure you that, although I sell individual rights to my hive, I believe that I have as well satisfied a lot of customers as any man in the supply-business. There are counties that are now well along, and continuing to progress, in improved bee culture, that, before the introduction of my hive, were 50 years behind the times. Intelligence and profit have been abundantly gleaned from its use. Now, friend Root, are you not aware that a person can not push out into new fields, and use the time and money necessary to break down old-fogy ideas unless he has a patent back of him that will secure to him a proper reward for his labor? If a man believes it to be worth $5.00 to him to have the privilege of making and using a certain patented invention, is it not fully as just to sell him that privilege as it is to sell him all he needs of the article, while he thus pays in profits more than he could have saved by making the article himself, and saving transportation? The same department of government that gives me control of my hive gave you a copyright on your A B C book, that you might profit from your labor in writing it. Now, protection for such small articles is not needed as badly as on bulky ones, for they can be shipped at a small per cent of their value; but the only proper way to handle a patent hive is by the selling of rights so they can be made in the community in which they are to be used. Furthermore, a patent often cheapens an article. The notched tins used in my hive cost, when cut by a saw company in Chicago, $13.00 for 100 hives; but being protected by a patent, and thus controlling the trade so that I can get out 1500 sets at once, with the certainty that I shall not have opposition, I have invested in machinery that gets them out at $3.15 per 100, and then leaves me a margin. A patent fence has been introduced in our county that has proved an immense saving to our farmers. Has there been a wrong done by their being asked to pay 5 cts. an acre for the farm-right?

If you ever hear of any complaints against me, please refer them to me at once.

G. K. HUBBARD.

La Grange, Ind., June 4, 1888.

Friend H., you make a blunder at the outset. Let us get that right before we go any further. We have no copyright on the A B C book, and never expect to have. If anybody can print it at a less price than we do, and at the same time stand the condemnation that would be pronounced on him by every good man, let him go ahead. I know, friend H., that you have done business without having complaints (that is, we never heard of any) for a good many years, and I am glad to know it; but for all that, I can not help thinking of you a good deal as I do of the man who says he has used hard cider all his life, and has never yet been intoxicated. You are a conscientious, upright business man; but I do think the example of the man who drinks hard cider, without injury, harms the community, just as I think your example of taking five dollars for an individual right harms community. I have considered well the point you make in regard to manufacturing goods by improved machinery while you have a monopoly on the same goods; but, dear friend H., we do the same thing in many departments of our business, without any patent at all. A man once came to our establishment, looked over our machinery, took dimensions of our castings, and even bought pieces to be used for making patterns of our extractors. In a few weeks he started up in a large city, and advertised "Extractors, better than those made by A. I. Root, for one dollar less." For a little while he injured our business somewhat. Some of my friends told me that I was just beginning to reap the results of my folly in not having my extractor gearing patented. I presume the bee-keeping world, at least most of them, have forgotten by this time that *that* man ever sold extractors.

Do most of your customers who pay you five dollars for the privilege of making your hives, make a practical use of what they pay you money for? Now then: You speak about a patent fence. In our vicinity more people have been swindled by patent fences than by almost any other one thing. In fact, my own father was once entrapped by a gang of fence men before I knew it, and was going around among his neighbors, lending countenance to this gang, and helping on a swindle before *he* knew it. The men who sold rights had a patent on an ornamental cap for a fence-post. They had no patent whatever on the fence. Furthermore, this ornamental cap to the post they did not use, and did not show. They took money from the farmers all over Medina County, and yet every farmer had a perfect right to make as much of the fence as he pleased. If it would not seem bold, I should like to suggest that possibly an investigation of the fence you mention might reveal the fact that it is of the very same stripe. Since we are on the fence question, if our readers want the opinion of A. I.

Root it is this: Do not, under any circumstances, pay anybody one single copper for a *right* to make any kind of fence that has ever been invented. Fences have for many years been a hobby of mine, and I think I am pretty well posted, both in regard to common fences and patent fences.

HEADS OF GRAIN
FROM DIFFERENT FIELDS.

BEESWAX FLOATING IN WEST-INDIAN WATERS.

In your answer to Mrs. Chaddock's question in GLEANINGS, page 351, you overlooked one very common cause of the floating of valuable articles in these waters; viz., shipwreck. The peculiar situation of these West-Indian waters makes them one of the great commercial highways of all nations, and millions of property is lost by shipwreck while traversing it. I wish to say to Mrs. Chaddock, that beeswax, as well as other kinds of valuable property, is obtained here in the West Indies by the same agency as in other parts of the world—that is, by hard work, and is not carelessly allowed to float over the waters from any of the causes which she enumerates. O. O. POPPLETON.

Havana, Cuba, W. I., May 16, 1888.

CUT-WORMS, AND WHAT TO DO WITH THEM.

Can you or any of the numerous readers of GLEANINGS tell us what to do to prevent the cutworm from destroying our cabbage and tomato plants? If you can, I know you would confer a great benefit upon the readers of your journal.

D. W. C. MATTHEWS.

Ypsilanti, Mich., May 29, 1888.

Friend M., prevention is the only cure that I know of. There may be remedies after the worms have been at work at your plants, but I think they will be pretty expensive. Now for the prevention: Have a flock of chickens trained to follow you every time you stir the ground, whether it is to plow, harrow, cultivate, or to drill the seed. It may be difficult to do this with large fields; but the market-gardener can have a flock of chickens located at different points on his grounds, so as to clean out not only all the cut-worms, grubs, and every thing of that nature, but even the angleworms that feed so voraciously on highly manured ground, if you do not have chickens to keep them in check. On our ten-acre farm we have poultry located at five different points, demonstrating the theory laid down in Stoddard's book, called "An Egg-Farm." These separate flocks of fowls adhere to their own location, never mixing up, and seldom crossing each other's hunting-grounds; and altogether they spread themselves pretty thoroughly over all the ground we cultivate.

ITALIANIZING, AND WHAT TO DO WITH UNFINISHED SECTIONS.

I wish to know how a person as ignorant of bees as I am can Italianize. Could I use Alley's drone-traps (I have one) with any success? I am very anxious to Italianize. When I commenced with bees, probably 12 years ago, they were Italian; but every trace has disappeared, and they are nothing like as good honey-gatherers as they were.

Will it pay me to get an extractor to work up unfinished sections? If so, how can I uncap partly capped sections?

Bees have wintered very well with me, not having lost a colony. THOS. T. ARNOLD.

Comorn, Va., April 24, 1888.

Friend A., the best way to Italianize is to purchase a "tested" queen and introduce her according to the printed directions sent with the queen. Of course, the colony receiving her should be made queenless previously. If you desire to rear queens, and have black bees in your apiary, you can use the Alley drone-trap to some advantage. Attach the trap in succession to all the colonies having drones from common bees—drones from which you would not desire to breed. In the mean time, raise as many drones from your Italian colonies as you can, and you will stand a chance of having a large proportion of queens fertilized by these drones.—It will hardly pay you to purchase an extractor, if you expect to do nothing more than to extract honey from unfinished sections. The best way to dispose of them is to sell them to your neighbors and friends at a reduced price. They will also come very convenient for placing on top of the cluster in the fall, for breeding up. If you desire to run for extracted honey at all, we think it would pay you to get an extractor.

DRONES OUT OF SEASON.

While examining one of my colonies of Italian bees recently I was surprised to see a number of drones in the hive—perhaps as many as fifty. There was a little brood in all the stages of growth, and ten or twelve sealed drones, but no sign of queen-cells. The queen is healthy, and the colony in good condition. This colony is one I reared from the queen and ½ lb. of bees purchased of you in the summer of 1886. Last year they built no queen-cells, and I noticed no drones about the hive until Nov. 14.

What do you think of such behavior? Do Italians usually rear drones when not preparing to swarm, or is it possible they were in the hive all winter?

Bees wintered well, and are now busy on peach and cherry bloom. Prospects are good for a large yield of honey, unless something occurs over which we have no control. S. S. SAUMENIG.

Ivory, Md., Apr. 30, 1888.

Friend S., it is nothing unusual to find drones as you describe, in the month of April. It may be owing to some peculiarity of the queen, but I think the bees have also decided, for some sort of reason, that swarming would be in order before a great while. Drones have been known to be in a hive all winter, but it is very unusual, unless the stock is very powerful.

PREVENTION OF SWARMING BY INSERTING RIPE QUEEN-CELLS, AGAIN.

On page 256, under the heading of "How to Prevent Swarming," L. Hubbard writes, "Let the colony swarm once of necessity, and in about a week cut out all queen-cells, and in a week from that time, or two weeks from the first, go to said hive with ripe queen-cells and supply them with new hatching queens." Now, will friend Hubbard please answer this question? Did you sometimes have your queens killed in introducing in the way you state? Having tried the plan as you give it, unless I examined the hive before putting in the queen-cells to find if they had started any new ones in course of the last week, they were almost sure to destroy the one I put in. FRANZ ZSCHOEMITZSCH.

Monticello, N. Y., April 14, 1888.

Friend Z., this is a matter that has been a good deal discussed in our back volumes. At times, the bees seem to destroy every cell that is inserted, while, again, none of the cells are molested. Season and circumstances seem to have much to do with it. As a rule, we can let a queen that has not been out of her cell more than a *few hours*, loose in any hive, without danger. In using the lamp-nursery, we have very little difficulty in introducing newly hatched queens.

WHAT DEGREE OF COLD WILL THEY STAND?

In handling frames of brood, what degree of cold can they safely endure, and how long is it safe to have the brood out of the hive?

What degree of cold will plants endure (potatoes, tomatoes, etc.), under the boxes which you recommend on page 7 of your catalogue?

What degree of cold will eggs endure without injury, if the hen is off the nest ten or fifteen minutes?

Will tomato-plants and others, that grow very slowly on account of the cold, be just as valuable when grown as any? MISS L. WILLIAMS.

Delavan, Wis., April 24, 1888.

I am very glad to see questions about this very important matter, Miss W. Frames of brood will stand a freezing temperature very well, if they are out of the hive only a little while—say five minutes. During very warm summer weather, brood will hatch after it has been out of the hive over night. The unsealed larvæ, however, are very likely to die — the greater part of them. But I have often thought it was because they are fed, usually, every two or three hours. Potatoes and tomatoes will endure safely with the thermometer down to 20°—that is, 12 below freezing, providing the glass fits pretty closely, and you bank the earth around the lower edges of the box. A sitting hen may be off from the nest for 15 minutes or more, when the temperature is down to zero, and the eggs hatch all right. Now, I do not know how much longer they would stand it; but I once knew some of the eggs to hatch after a hen was kept off from her nest by accident over night. During the night time the mercury went down pretty nearly to zero. The chickens were very feeble, and hardly made out to live. I am afraid that plants, especially tender ones, such as tomatoes, potatoes, etc., that have been several times frosted, are often put back so that they are not as forward as other plants set out after frost is past.

WHY THAT COLONY DID NOT DIE.

In the fall of 1884 I had ten late swarms of bees that had about 3 lbs. of honey each. Oct. 15th, when the thermometer stood at 60 at sundown, I put them in a clamp. The last one that I put in the boy got stung by, and let his end fall. The boy ran, and I had a time getting that colony into the clamp. I could hear them roar after they were 12 inches under the earth. Why didn't this colony die? When I took them out of the clamp, March 13th, the 9 others were all dead. They looked as if they had been starved to death for two months, while the one that I had such a time with was all lively and nice; and if they had eaten any honey, I could not see it. WM. M.

I am inclined to think that the colony that got shaken up so, must have had more than 3 lbs. of honey. Is it not possible that they had three times that amount? Stirring them up in the way you mention would cause them to fill their sacs with stores, and we have always supposed this to be a very expensive operation, where bees had their stores sealed up, and were ready for winter quarters. If they had any such amount as you mention, the case seems to point toward the sort of hibernation we have so often talked about.

AN APOLOGY—GOODS ALL SENT.

I have an acknowledgment to make to your packer. I got, last winter, 10 Terry bushel-measures of you, and, as I wrote you, I was sure there were no bottoms sent, but some extra side pieces. This morning, before sending off my order, I determined to put one together, as far as the pieces sent would go, so I could send for exactly the right number of missing pieces; and the result was, that the sides and bottoms were so near alike that I mistook one for the other, and found the 10 boxes complete. Please let your packer know that he was right and I was wrong, and tell him to accept my apology for saying he had made the mistake.

Belleville, Ill., May 22, 1888. E. T. FLANAGAN.

Will some of our customers please take notice? We have received a good many such letters. It costs us, our clerks, and packers, a good deal of unnecessary trouble and expense. Friend F. meant all right, but, like a good many others, did not take time to make *sure*.

SECTIONS OPEN ON ALL SIDES, AND SHAVING COMBS DOWN.

It seems to me the open-all-around box is *the* box; and I want to say the 50 sent are just splendid, the best I ever saw; and the one-piece pleases me too. One word about getting the bees into them. I gave it to the Lewiston *Journal* four years or so ago. Shave the combs down to ⅜, and close up to ⅜, and you will drive the bees above, and they can not bulge the combs. The queen will improve them far beyond your expectation. I believe I was the originator of this idea, though others have talked it up some within a year or so. I never saw or heard of it till it came from a wakeful number of nights. It has pleased many about here, and they credit me for it. E. P. CHURCHILL.

Hallowell, Me., May 2, 1888.

Very likely, friend C., you are the originator of this idea. It has gone through our journals, and has been used to a considerable extent. If so, we owe you a vote of thanks. I believe it sometimes proves quite an important help.

THE SPECIAL POSTAL DELIVERY FOR MAILING QUEENS.

I wish to call the attention of bee-keepers to the special-delivery system of the mail service, and point out the advantages that might accrue to them by its use for sending queens, etc., with greater dispatch and safety. The system provides that all postoffices shall be special-delivery offices, and that any package of mail matter bearing a special-delivery stamp (costing 10 cts., and procurable at any postoffice) in addition to regular postage, shall be handled in transit under special regulations tending to greater dispatch, and upon arrival at office of destination it shall be sent immediately by a special messenger to the addressee, provided he lives within the carrier's limits of a letter-carrier office, or within one mile of any other office; records and receipts are also provided for, something like those for registered packages.

I am very glad that you have begun making sections open all around, and separators, as described on page 267. I think they will certainly become popular at the price you offer them. I remember receiving some inquiries in regard to the matter after the appearance of my article on page 689, GLEANINGS for 1886. W. H. GREER.

Paris, Tenn., Apr. 9, 1888.

Friend G., your suggestion is an excellent one, and we will cheerfully put on the special-delivery stamps if our customers prefer to pay the additional 10 cts. for having them delivered promptly. I think it would result in doing away with a good deal of the loss in sending queens by mail.

LETTING THE WOMEN HAVE THEIR OWN WAY.

I inclose a copy of the constitution and by-laws of a bee-keepers' association formed here last February through my efforts; and had you and friend Terry been here you would have found no fault with the non-attendance of the ladies, as you will see by the list of members; and when in presenting the constitution and by-laws I proposed admitting ladies free they perfectly nonplused me, and gave me to understand that the women of Newaygo Co. are as able to pay their way as the men. I said, "God bless you," and let them have their way. G. E. HILTON.

Fremont, Mich., Mar. 26, 1888.

Friend H., we are very glad indeed to hear of the energy and go-ahead to be found among the women of your vicinity. Let them have their way, if they *insist* on it, by all means. At most of the conventions which I have attended, we have been so glad to see the women-folks present that we have been quite willing to excuse them from the financial burdens.

LIZZIE COTTON.

Friend Root:—I want to say that I indorse what friend Miller says about Lizzie Cotton, on page 398, and the way friend Alley, of the *Apiculturist*, speaks about your apologetic remarks, for some of my bee-friends have been bitten most severely by her, and think her now no better than a horse-thief who will steal your horse if he has a chance, and is only waiting. Now, Bro. Root, own up that your charity for her has gone a little too far, and insert the notice you used to keep in GLEANINGS about her, and then we will think you are nearer right.

Enosburg, Vt., May 28, 1888. F. M. WRIGHT.

All right, friend W.; but we should like a little plainer statement of the facts before we decide too severely against Mrs. Cotton. Have your friends written her in regard to the matter, and does she refuse to make it satisfactory?

A VISITING SWARM MEETS A WARM RECEPTION.

I purchased 1 lb. of bees and a queen from you last season, and liked them well. They did as well as could be expected until the 18th day of this month, which was a very fine day. About one o'clock, the queen, with nearly every worker in the hive, came hurrying out, flew to and fro a while, then settled upon another hive. I caught the queen before she entered, but the workers would enter, in spite of any thing I could do; and such another battle! I got my smoker, and tried to quiet them, but to no purpose. I think every yellow bee was killed. I divided a strong colony, and gave them my Italian queen. Now, what was the cause of their leaving their hive? They had plenty of honey, but very little brood. I had been watching them, and did not see any sign of robbers; and if there was any thing the matter with their hive, I could not tell what it was when I examined it. I should like to know what was the cause of their strange conduct, for I have had heretofore two colonies do the same thing, and one that refused to settle at all, and left for the woods. I. E. MORRIS.

Temperance, Simpson Co., Ky., March 24, 1888.

Friend M., this is a case of absconding. It is hard to say why the bees do so, in some cases. It seems to be a sort of mania that sometimes affects a whole apiary, but we have not seen much of it nor heard much of it of late years.

CATALPA, COTTON - PLANTS, TULIP, REVERSIBLE FRAMES, T SUPERS, GETTING RID OF ANTS, ETC.

(1) Does the Japanese hybrid catalpa, a tree I see published in W. Atlee Burpee's catalogue, Philadelphia, yield honey? It is said to be a very fast grower, and one tree is said to perfume a place with a delightful odor for a long time. (2) Does any one know for certain that the cotton-tree yields honey? (3) Is it generally agreed that the T super is superior for sections to the wide frames? (4) Are reversible frames superior to the common metal-corner frames? (5) Can you tell me what will destroy ants in a garden?

Moles can be destroyed by soaking corn until it gets soft. Raise the heart and put a little strychnine under it, and mash it down again. Drop it in their holes a few times, and they will soon disappear. Hawks can be killed by mixing a little strychnine in molasses, and putting on the backs of little chickens' heads. The hawks eat every thing about a little chicken, never stopping to pick the feathers off. J. T. MCCRACKEN.

Rosebud, Ala., April 18, 1888.

(1) We don't know any thing about the Japanese hybrid catalpa; but if you mean the catalpa which has been mentioned in our back volumes, we would say it does yield honey. The timber of the tree is said to be very durable. As to its value as a honey-plant, one H. M. Morris, on page 181, GLEANINGS for 1882, considers it as good as basswood. He says he has 1000 catalpa-trees. We have heard so little from this particular tree lately, we presume it does not by any means do as well for others as for friend Morris. We have one or two of the trees in our town; and while the odor from the blossoms is very fragrant, our bees have never yet gathered honey from them, to any appreciable extent, that we know of.

(2) We do not know what you mean by the cotton-tree. If you mean the cotton-plant, we would say that it certainly does yield honey, although very sparingly, they all say. But perhaps you mean the cottonwood-tree, or one of the tulip family. This latter certainly yields honey. See the A B C book. In regard to this matter of honey-bearing trees, we would say that almost any tree yields honey at times. Even the hickory has been known to yield some nectar. Again, some of best honey-producing trees will fail in some seasons, notably basswood.

(3) In answer to this question, I would refer you to an article by C. C. Miller, on the subject of wide frames vs. T supers, page 345, May 1st. After considering the pros and cons, the doctor decides in favor of the T super.

(4) The reversible wire corners are very much superior to the metal-cornered frames. They possess all the advantages of the latter, and several good features besides. We have been introducing them into our apiaries the past year or so, and we are very greatly pleased with them. Combs with reversible wire corners are always nicely filled out, and of an even thickness throughout.

(5) The A B C says, sprinkle powdered borax over the hills, when the ants will speedily " pull up stakes " and abscond. The application of turpentine to the hills is also very efficient in making them leave.

IRRIGATION IN FLORIDA, AND HOW SHALL IT BE DONE?

Friend Root:—Bee-keeping in Florida is the same here as elsewhere. The man and the natural forage make it a success or a failure. Gardening in Florida is the same. Land and water are the two natural elements of success or failure. We have the usual rainfall of the land during the year, but we are so situated that we have the dry and wet season. The dry is in the winter and spring, when we most desire it for gardening purposes, hence irrigation must be resorted to. It has been tested to our perfect satisfaction. But the manner of its application is the question. How shall we irrigate? That is the theme. Sub-irrigation is the way, but how apply it? There, we get all the water. Of surface irrigation, wind and sunshine get more than two-thirds, with no benefit to the plants. Can you enlighten us any on the subject?

Altoona, Fla., Apr. 27, 1888. JOHN CRAYCRAFT.

Friend C., this matter of irrigation is now the great problem before the world. If you are obliged to irrigate when the sun and wind are *both* hot, it will take a very large amount of water indeed. So far as I can learn, experiments made in the way of sub-irrigation have not been very successful—that is, during a very severe and protracted drouth.

HOUSE APIARY; TRANSFERRING.

As one of your A B C class, please let me add that my bees have wintered poorly; but it is my own fault, as my house apiary is not ready in season to put them in good winter quarters. From ten colonies in the fall there are left now but three. Two died from dysentery, two from snow blown into the hives, and the others probably from dampness, as the combs were moldy. One colony, apparently doing well now, was in a box hive; and finding, a few days ago, that their combs were very moldy, I transferred them, saving a few of the cleanest pieces of their combs, and giving them also two clean frames of honey.

My house apiary is hexagonal, having the door on the northwest side, and just room for two Simplicity hives in width on each of the other five. Also, there is room for three stories of hives, making 30 in all, that the house will hold.

Is it best to transfer a colony whose combs are moldy?

Will a house apiary with four inches of dry sawdust in the walls answer as well as chaff hives?

Barkhamsted, Ct., Apr. 18, 1888. J. B. CLARKE.

I do not think I would transfer a colony simply because their combs are moldy. If they are populous with bees, the moldy combs will be all fixed up sweet in a very short time. Dry sawdust will probably answer just about as well as chaff. In fact, a great many use it where chaff is not convenient.

PREVENTION OF INCREASE.

Could you give us something practical on how to prevent increase? I want all my colonies to come out in the fall with no queens older than last summer. I am thinking seriously of hiving all first swarms, which I can not prevent, close to the old stock, and in ten or twelve days take away the queen from the swarm and set it (the swarm) on top of the old stock.

CHAS. MITCHELL.

Molesworth, Ont., Can., Apr. 30, 1888.

Friend M., this is a wide subject. It has been discussed a great deal through our journals, and you will find much in regard to it in the A B C book. Perhaps Doolittle will give us an article on this subject, as he has had a good deal of experience, and he practices keeping the number of his colonies down to a certain limit.

USE FOR OLD FRUIT-CANS.

Mr. Root:—Your very interesting talk about transplanting-cylinders of tin suggested the idea of using some three-pound tomato-cans I have. I set them on the stove until the bottom solder was hot enough to jar out the bottom, and I had the very things. Cut out the top; don't melt it off; leave half an inch of it all round for stiffening. I tried them on some watermelons first, and they are all right—rather thin for stiff ground, however, but answer well on light soil.

Your idea of using a wheelbarrow full of them at one time, so as to be able to carry the plants to the fields, was altogether new to me, and opens up great possibilities.

I had some little trouble in getting the earth out nicely, even after pouring water a little while. I found, however, that by jarring the cans by repeated blows with a small stick while extracting them is a great help.

My transplanted melons are doing finely. I will try the cans on tomatoes next week.

I am very glad I read your talk in GLEANINGS. The boys take it, and all of us want to read it as soon as it comes. We are profited by reading your little sermons. We hope you will live long to continue them.

Bees are making honey fast with us. We took some yesterday. Apple-trees are in bloom; peaches are badly hurt by the cold. We plant no clover or honey crop, so our bees do very little after June.

Please tell us why 3 strips are used in making the five-cent honey-frames described on page 241. Why will not two divide off as well? I can't see the use of the third one. H. E. EADDY.

Johnsonville, S. C., April 14, 1888.

Thanks for your kind words, friend E. *Three* strips are used in dividing the brood-frames, so as to make the five-cent honey-packages, because it obviates the danger of having the glue run through the corners so as to stick the little cakes together. Where there are three strips, the middle one will almost *always* be loose.

CHAFF PACKING, AND SOMETHING UNFAVORABLE IN REGARD TO IT.

I went into winter quarters with 29 colonies—17 of them chaff-packed on summer stands; 12 of them were on summer stands, with no protection except the bare hive. I lost two outright; one of them was chaff-packed, and the other unprotected. Five were weak, three packed, and two unprotected. I have lost one since removing the packing, also one that was packed with chaff. This last was robbed; so, taking every thing into consideration, I have well nigh concluded that chaff packing in our climate is almost useless. Does it not seem so? I admit that this is not conclusive, as next winter might not "pan out" that way at all. Bees began gathering pollen March 23d, and are now making a mighty roaring on fruit-bloom, and the hives are redolent with the perfume of new honey. Peaches, pears, plums, and some apples are now in full bloom. Prospects now point to a good honey yield, to compensate us for last year's failure. I placed the surplus boxes in position during the past week, and have 26 colonies working with a vim. Altogether I have much to be thankful for to the great Ruler. ALLEN AGNEW.

Farmington, Mo., Apr. 16, 1888.

Your report seems to indicate that chaff packing was of no advantage. Your experience is certainly very unusual; and as the testimony of all bee-keepers, with scarcely an exception, is emphatically for chaff over hives not so protected, I can not help thinking there was something wrong in the way in which you prepared your bees. In fact, I feel almost sure you neglected some important detail; see "Chaff Packing," under "Wintering," in the A B C of Bee Culture. See, also, "Feeding."

HOW THE A B C OF BEE CULTURE IS ABLE TO MAKE BEES A SUCCESS.

Mr. Root:—Some years ago I became possessed of a swarm of black bees; and from watching their movements for some time I became much interested in them. I purchased the best work to be got here on apiculture, one by Taylor, an English work, and I made little headway; but meeting with so many misfortunes through my ignorance of the subject, I gave up bee-keeping in disgust. I made frame hives and went to a great deal of pains, but could not get the bees to build straight combs; besides, the bees were eternally stinging the children, until they hated the name of a bee; and my wife hinted at the cruelty of the matter on my part, to keep such monsters about the place. However, about two years ago I came across your A B C book, and made another start at the bees, and, thanks to that valuable work, and more thanks to yourself for having written so exhaustive a work on bee-keeping, both I and the children are all able to manage bees successfully. We have a number of hives, and have commenced to Italianize them this year. The boys declare we are master of the subject. Of course, I do not indorse their opinions, because I know it is a subject of which a person of moderate intelligence has always something to learn. JAS. SUTTON.

Walhalla, Australia, Feb. 17, 1888.

BEES FLYING LONG DISTANCES.

There surely are yet unsolved mysteries in bee-keeping. In GLEANINGS for March 15, 1888, page 206, T. B. Smith states that his bees worked on mint six to eight miles from home. Last summer, while alsike clover was blooming profusely only two miles from me, I was actually compelled to feed my bees; and while sweet clover three miles from my bees was yielding honey plentifully, my bees were hardly making a living. What does all this mean? I received but little honey last year, as I worked principally for increase. U. H. WALKER.

Sabetha, Kan., March 24, 1888.

Your experience agrees with my own. Our bees have never worked to any profit, so far as I can discover, when they had to go more than two or two and a half miles from home; and I don't believe I would make calculations on more than that in locating an apiary. Some years ago one of our neighbors was located about three and a half miles from a large swamp where there was a large profusion of honey-bearing flowers. During dry spells in the fall his bees would go to this swamp, and they brought some honey; but he concluded that about as many bees were lost in going this long distance as the honey amounted to—that is, if he was working to increase his colonies as well as for honey. As an experiment, he moved about fifty colonies right down to the edge of the swamp. The bees stored honey and built comb at once; and another bee-man, located about a mile from the swamp, did quite a business extracting swamp honey. I know other reports seem to indicate that, under certain circumstances, bees will profitably go further.

WINTERING QUEENLESS COLONIES.

If a queen dies in the beginning of winter, or during the winter, will the bees winter as well as they would if she had lived? ARCH. DUNCAN.

Wyoming, Ontario.

Friend D., you can winter a colony almost as well, and in some cases even better, if the queen dies or is removed, say any time after the first of November. By the time the bees begin to gather natural pollen, a new queen should be procured from our Florida friends. She will commence laying immediately, and the bees will go to brood-rearing in a way that will surprise you. Some of our most expert bee-men are beginning to think they would rather not have any brood-rearing until the bees begin to gather natural pollen. If this is so, there is no special need of a queen in the hive at all, from November till April.

OUR QUESTION-BOX,

With Replies from our best Authorities on Bees.

All queries sent in for this department should be briefly stated, and free from any possible ambiguity. The question or questions should be written upon a separate slip of paper, and marked, "For Our Question-Box."

QUESTION NO. 58. *In working for comb honey, have you ever found it necessary or advisable to tier up more than three sections high?*

No. E. FRANCE.

No. O. O. POPPLETON.

No. DADANT & SON.

Never more than two. MRS. L. HARRISON.

Very seldom, if ever. L. C. ROOT.

Sometimes, but not often. JAMES A. GREEN.

Yes, but only very rarely. H. R. BOARDMAN.

Yes, tier up till the season closes. GEO. GRIMM.

I think it neither necessary nor advisable to tier up more than two sections high. CHAS. F. MUTH.

Three are the most I have used on the 8-frame Langstroth hive, or 12-frame Gallup. A. J. COOK.

More than three tiers of sections would presuppose a yield of honey that is not often had in my locality. E. E. HASTY.

Three is the limit with us, but the size of the clamp will have to determine. Three of ours make a hundred pounds. P. H. ELWOOD.

No; but if I were located where honey could be shaken from the trees, as is said it can be in Ontario, I might find it advisable. DR. A. B. MASON.

I have tiered 7 high, and had a big lot of unfinished sections. I think it is not often well to tier more than three high. C. C. MILLER.

Yes, especially when honey is coming in very fast; but as a general rule, 2 tiers are sufficient, as, by the time the second tier is partly filled, the first one is in condition to take off, etc. PAUL L. VIALLON.

I do not tier up sections at all, and think that there is a better way; for instance, the top and side storing combined plan, or that of working the sections on the lateral plan I have spoken of lately. G. M. DOOLITTLE.

That depends upon the kind of a brood-chamber you have under the sections or supers. It is sometimes quite advantageous to tier up 4 supers high, for a short time, but the result of such tiering will not be satisfactory unless the brood-chamber below is contracted. JAMES HEDDON.

QUESTION NO. 59.—*Can cleaner sections be secured (that is, less soiled with propolis) in crates or T supers which afford no covering around the sections, but are provided with a bee-space above and below, than in wide-frames or other surplus arrangements which cover the surfaces of the sections entire? 2. In your experience, what section-crate gives you the cleanest section honey?*

1. I think not. 2. The Heddon case. MRS. L. HARRISON.

1. Not with us. 2. Wide-frame crates. P. H. ELWOOD.

1. Not much difference. 2. Shuck's or Foster's. DADANT & SON.

1. No. 2. The Doolittle single-tier wide frame. PAUL L. VIALLON.

1. No. 2. Armstrong's side-opening T-section crate. DR. A. B. MASON.

Outside surface should, as far as practicable, be non-accessible to the bees. GEO. GRIMM.

1. I think not, if the latter are made as they should be. 2. One tier high, wide frames. G. M. DOOLITTLE.

They have with me. That they always would with all, and with all apparatus, I can not say. A. J. COOK.

1. Yes, decidedly, so far as my experience goes. 2. The T super; but I have not tried all the others. C. C. MILLER.

I would rather let more extensive raisers of comb honey answer this and the two succeeding questions. O. O. POPPLETON.

No. The wide-frame supers open out the cleaner sections, but their cost is greater than the T super, or old style of Heddon case. JAMES HEDDON.

As we raise but little comb honey, I don't wish to give an opinion. I shall be interested in the answers given by comb-honey men. E. FRANCE.

I think not. But doctors will disagree. By the use of wide frames I have been able to secure cleaner sections than with cases. H. R. BOARDMAN.

Propolis seems to be largely a matter of location. The amount brought in here is very large. I do not expect any thing to remain clean long, unless covered. E. E. HASTY.

2. Any crate where the bees have access only to the passage and the inside of the section. I prefer to have as much as possible of the section excluded, even from the light. L. C. ROOT.

1. Yes. Bees are not much inclined to propolize smooth surfaces. They put propolis into crevices, and there are more crevices in wide frames of sections than in crates. 2. The old Heddon case. I have not had a chance to fairly test the newer styles. JAMES A. GREEN.

1. Under otherwise the same circumstances, as clean sections can be secured in open crates as when there is a covering around the sections. When the arrangement is wrong, the edges of sections will be soiled if the bees can get at no other part. 2. Those crates where the bottoms of sections are no more than ⅜ inch nor less than ¼ inch above the top-bar of frames. CHAS. F. MUTH.

QUESTION NO. 60.—*Is it possible, with the present instincts of the bees to deposit propolis, to construct a section-crate so that the filled sections shall require no scraping before being placed upon the market? Is there such a surplus arrangement now in existence? If so, what is it?*

No. L. C. ROOT.

I think not. MRS. L. HARRISON.

I think not. JAMES A. GREEN.

I don't know. E. FRANCE.

See question 59. DADANT & SON.

See answer to 59. O. O. POPPLETON.

1. I don't know. 2. I don't know of any. DR. A. B. MASON.

I think not. If there are any such in use I have never seen them. H. R. BOARDMAN.

No. If such an arrangement is in existence, I have not heard of it. **GEO. GRIMM.**

By use of the Heddon slatted honey-board I have had many sections come off as clean as when put on. **A. J. COOK.**

The Doolittle single-tier wide frame comes nearer to it than any other yet invented. A similar one is used in Heddon's new sectional hive. **PAUL L. VIALLON.**

With paper boxes or their equivalent, some producers and dealers do not think it necessary to clean sections. I have never used any. **P. H. ELWOOD.**

"There is nothing perfect under the sun," is a rule which applies to our surplus arrangements. The best of them will be soiled at times. **CHAS. F. MUTH.**

During the basswood yield, yes. During the buckwheat yield, or that from fall flowers, I guess we shall always have propolis on our sections. **G. M. DOOLITTLE.**

No, unless the case is put on and taken off, filled during a period when the bees are so busy honey gathering that they can't stop to chink in propolis. Wide frames are the best protection to the sections. **JAMES HEDDON.**

There are times (and perhaps I ought to add places) when, if sections are promptly taken off, little or no scraping will be needed. At other times the bees will decorate with propolis every accessible part, no matter what the arrangement. **C. C. MILLER.**

In a clean location, with a strain of bees naturally disposed to be clean, with sections not put on till the crop is coming in, with the good fortune to have no idle spells of a week or so in the midst of the harvest, and with supers taken off the minute the crop is over, the thing might be done. I don't think the style of super would matter much. If the honey is to go to market, super and all, it would be important that the fixtures take to pieces very easily by the hands of clerks who "know not mutchee." **E. E. HASTY.**

It seems to me, friends, in the answers to the above three questions, we have something not only very seasonable but also valuable. The matter of getting honey from the hives, clean enough for market, without any cleaning or scraping up, is a problem that perplexed me sorely as much as twelve or fifteen years ago. Some of the friends may remember that we had arrangements of tin to fit all over the woodwork, with the view of keeping the bees and also the light, as L. C. Root suggests, entirely away, but it was never a success. The fine mechanical work necessary to get a fit every time, we found next to impossible; and without this the bees would wedge in the propolis. At the same time, during the height of the season we had occasionally a section filled and capped over that was so nearly what we sought for that I sometimes thought we had better give up the idea of trying to incase the woodwork of the section. Friend Heddon's improvements in this line, in connection with the slatted honey-board, have made it seem quite likely that we had better not try to fence the bees off. At the convention in Utica, N. Y., there was considerable discussion as regards a paper box so made as to cover all unsightliness, thus rendering it unnecessary to go over the operation of scraping and cleaning the woodwork. I should not like to say that it is impossible to make an arrangement to keep the woodwork unsullied, but I do say that all the arrangements that have ever come to my notice have been either too much machinery or wholly inadequate for the purpose designed. I think it will pay our comb-honey men to read over the answers to the three above questions a good many times. Where sections are tiered up three high or more, they will be quite sure to be soiled more than where we do not practice so much tiering, and the result is also likely to be a large number of sections only partly filled when the season is over.

NOTES AND QUERIES.

SWARMING ON SUNDAY, AND CAN IT BE PREVENTED?

CAN bees be prevented from swarming at certain times, as, for instance, on the Sabbath day? If swarming oftener than desired, can they be prevented? **H. H. STONE.**

Sugar Grove, W. Va., May 11, 1888.

[Bees have and will swarm on the Sabbath in spite of the religious belief of their owners to the contrary. Some have thought they select Sunday as a day of swarming, but I am inclined to think there is nothing in it, except that it "happens so." Frank Cheshire suggests that the universal quiet prevailing on this day may have something to do with it, for he says bees prefer quiet times.]

AT WHAT TIME OF DAY ARE THE DRONES MOSTLY OUT OF THE HIVE?

In speaking of drone-guards, in GLEANINGS, you say, "Apply them after the drones are all out of the hives." Please tell us at what time of day the drones are all out of the hives. **C. L. COOK.**

Glen Rock, Neb., June 4, 1888.

[Perhaps, friend C., we should not have said, "When the drones are *all* out of the hive." What we intended to convey was, to put the trap at the entrance when the *majority* of the drones were out flying, and this is about 2 o'clock, on warm days.]

SUPPOSING THEY SHOULDN'T DO WELL, WHAT THEN?

I have had 4 swarms of bees this spring. Two went in one hive; they seem to be doing very well at present; but suppose they do not do well, then what must I do with them? **JAS. O. BARNES.**

Hickman, Ky., April 30, 1888.

[If your bees are in good condition at the present time, we should not be much concerned about them as long as they are doing well. In the event that they should not, we could hardly advise you unless we knew in what particular they were not coming up to your expectation. If they run short of stores, feed them. If they have no eggs or queen, give them a queen. If they require more room, give it to them. See A B C of Bee Culture.]

THE PAPERS FRIEND TERRY WRITES FOR.

In running over GLEANINGS for Apr. 15, I notice you tell a subscriber who asks what paper Mr. Terry writes for, that he used to write regularly for the *Ohio Farmer* and *Country Gentleman*, but of late "only now and then." I find, by the index of *C. G.*, 18 articles from Mr. Terry in 1887, and 9 this year so far. **W. H. COLEMAN.**

Albany, N. Y., May 24, 1888.

THE HUSK TOMATO.

Are husk tomatoes good for bees, or an injury to them? We have cultivated them for two years, and the bees work on them till the frost kills them in the fall. J. W. PRY.

Mutual, O., May 28, 1888.

[I do not see why you should ask the question, friend P. What reason have you to suspect the flowers of this plant can do injury?]

USING LARD-CANS FOR HONEY.

Will it injure honey to put it in a can where there has been lard? W. D. THARPE.

Williamsburg, N. C.

[The fact that the can has once contained lard, friend T., will not injure it a particle, providing, of course, your good wife makes the can perfectly clean. A stone crock that has contained lard, very likely could not be made so clean but that it would taint the honey. I believe there is no difficulty, however, in cleaning tin perfectly.]

WHERE DO THE SUPERFLUOUS EGGS LAID BY THE QUEEN GO TO?

What becomes of the eggs that the queen lays when disturbed, or when going from one cell or comb to another? L. M. BROWN.

Sergeant's Bluff, Ia., May 8, 1888.

[It has been suggested, friend B., that the worker bees eat them, in order that nothing be wasted; and I believe it is true, that they do sometimes eat the eggs of the queen when spare ones are not wanted anywhere.]

BROKEN COMB HONEY, AND HOW LONG WILL IT KEEP CANNED UP?

Would it be safe to put up broken comb honey in air-tight glass jars, ½ or 1 gallon sizes? How long would it keep all right? Would it do as well, put up the same way in tins? L. MABRY.

Aurora, Tex., May 6, 1888.

[Friend M., the great trouble with broken comb honey is, that the contents of the broken cells, and the liquid honey surrounding, sooner or later become candied, and this is almost fatal to comb honey, so far as the market is concerned.]

"SPORTS" AMONG BEES.

The queen I purchased of you last July produces a strange-looking bee. I at first thought them to be drones, as the workers were killing them off; but a neighbor of mine who claims to know more about bees than any one else in this neighborhood says they are not drones. I inclose you a few of them. I. E. MORRIS.

Temperance, Ky., May 22, 1888.

[The specimens of bees you send are neither drones nor workers. They are what we should call "sports." See Prof. Cook's recent article on the subject. We should be pleased to have you send a cage of live specimens to him.]

THE ALLEY TRAP A PREVENTIVE OF ABSCONDING SWARMS.

Please tell me if the bee-traps mentioned and for sale in the March *Apiculturist* will keep the swarm from leaving, by holding the queen till you can care for them. If this is so, that they could be put on the hives, it would save us much time. Farmers' folks are always busy, and we are beginners with bees. LIZZIE HURLEY.

Mount Carroll, Ills.

[Yes, the trap will catch the queen. She will be found in the upper apartment. The swarm, failing to find her in the air, will return; but you must be sure to place the queen among the flying bees, or else divide the colony after the swarm has returned, taking the queen to her new location. If the trap is left on the hive, and the bees make two or three attempts to swarm, and, failing to take their queen with them, they will generally kill her.]

JUVENILE DEPARTMENT

Every boy or girl, under 15 years of age, who writes a letter for this department, CONTAINING SOME VALUABLE FACT, NOT GENERALLY KNOWN, ON BEES OR OTHER MATTERS, will receive one of David Cook's excellent five-cent Sunday-school books. Many of these books contain the same matter that you find in Sunday-school books costing from $1.00 to $1.50. If you have had one or more books, give us the names that we may not send the same twice. We have now in stock six different books, as follows; viz.: Sheer Off, Silver Keys, The Giant-Killer; or, The Roby Family, Rescued from Egypt, Pilgrim's Progress, and Ten Nights in a Bar-Room. We have also Our Homes, Part I., and Our Homes, Part II. Besides the above books, you may have a photograph of our old house apiary, and a photograph of our own apiary, both taken a great many years ago. In the former is a picture of Novice, Blue Eyes, and Caddy, and a glimpse of Ernest. We have also some pretty little colored pictures of birds, fruits, flowers, etc., suitable for framing. You can have your choice of any one of the above pictures or books for every letter that gives us some valuable piece of information.

CONDUCTED BY ERNEST R. ROOT.

REPORTS ON SWARMING.

WELL, little folks, swarming is now upon us, and no doubt your papa has made some arrangement with you to catch the swarms while he is absent. We should like to have you tell us in the next issue what arrangement he has made, if any; just how he proposes to catch swarms: what sort of a swarming apparatus you are going to have used. Tell us whether he will clip the queen's wings; in fact, tell us all about your own experience in swarming. We want lots of little letters for the issue for July 15. Swarming will then be over in a good many localities; but while your minds are fresh, you can tell us lots of valuable things. Little Violet Fowls, as you will notice, has given us a big point. How many more "big points" shall we have? We should like to have you report also on two or three of the swarming-devices illustrated and described in this issue. There will be plenty of time for you to make one, and to put it into actual use. It is probably a fact, that women and children do perhaps half of the swarming in the country, and therefore you children (I don't mean grown-up women-folks) are well qualified to speak from experience.

ABOUT THAT POETRY ON PAGE 402.

We received GLEANINGS yesterday, which had my piece of poetry in. Please accept many thanks for the compliment you passed on it; but I am afraid (by the way you wrote) that you accuse me of copying it, which I would not be guilty of. I wrote it over and over again, so as to get it as near correct as I could; and for that reason I should not like to be accused of such a mean trick. CLARA STREBY.

Paw Paw, W. Va., June 4, 1888.

Friend Clara, we did not intend to convey the idea, or even to insinuate, that possibly you did not write that poetry. We saw in the lines "internal evidences" of originality. We simply intended to call attention to the fact that sometimes little folks (but we did not include you) copy poetry from books, and send it in as original with themselves, perhaps without thinking of what they were doing. Your card shows that you would not be guilty of such a thing. Perhaps we may have some original lines from you again.

POLLEN FROM HAZEL AND CEDAR.

The bees first began carrying in pollen Feb. 14, from the hazel. The pollen was chrome yellow. Feb. 28 they began carrying in pollen from the cedar. It was of a yellowish orange color. They are now carrying both pollen and honey from Sirvish plum, and willow; the pollen is yellow.

Snohomish, W. T., March 26, 1888. **LOIS ALLEN.**

GRANDPA'S BEES.

My grandpa keeps bees. He has 19 stands. One stung him in the eye. He came into the house, and my sister picked the sting out. Mamma found one swarm in the woods on a tree, and grandpa and Orella put them into a box. They made lots of honey. Grandpa made some big boxes this winter, and put the small boxes in them. Grandpa Crockwell sent you a nice book, and you sent him a lot of GLEANINGS. Grandpa wintered his bees on summer stands, and he had no cellar to put them in. We are living on a new place, and we have not got it fixed up yet.

Oakland, Iowa. **MINNIE A. REED**, age 9.

RAILROADS AND BEES.

We live in Uvalde County, about 50 miles from Mexico. We have 56 hives, and 4 new swarms on the 21st inst. Our bees are about 200 feet from the railroad. I think the trains bother them a good deal. We have two cows and calves. Our bees are all in good fix for gathering honey. I love to read GLEANINGS. I help papa with the bees when mamma doesn't need me.

Cline Station, Tex. **EFFIE LEE BOND**, age 10.

We are glad to get the facts you furnish about the railroad affecting the bees, but are you sure the rumbling of the train has any thing to do with it? The most of the folks who report on this matter seem to agree that it has no bad effects.

HOW THEY GROW SWEET POTATOES DOWN SOUTH, AS DESCRIBED BY A BOY 9 YEARS OLD.

Here in this cold climate we set the plants in ridges, made up like a beet-row, ridges 10 or 12 inches apart. After the plants begin to grow, pa takes a small wooden trowel and bursts the baked earth loose from each plant, and then he sprinkles unleached ashes around each plant, an inch or two from its stalk. He then covers the ashes up with loose pulverized earth, and in a few days you ought to see the plants grow. Pa drives broad pieces of boards down in each row between the plants, some 6 feet apart. This keeps the moles from running through their tunnels, as they run their heads against these boards, and this turns them out to the light of the sun, and they do not like to be bothered in this way. This is a good preventive against moles following this kind of ridges.

Pa has eight hives of bees. He commenced with two last spring. It was a poor season for honey here last year. Pa has a buzz-saw that Mr. H. A. Davis bought of you. We run it by water-power, and he makes hives for his neighbors. He transferred some bees last season for his neighbors through instructions from your A B C book, with good success. Well, Uncle Amos, I have a little blue-eyed brother. You ought to hear him crow and laugh at me. **CHARLEY G. HODGES**, age 9.

Sands, N. C.

LOTS OF GOOD THINGS, AND ONE NOT SO GOOD.

As I am just 15 years old, I do not expect a premium; but I thought I would write anyhow. My father keeps bees, and I like to help him attend to them. I help him transfer bees for other people. We make our own hives. We use Simplicity hives. My pa takes GLEANINGS, and I like to read it. I read your A B C book through, and liked it very much. Last spring as I was helping pa to saw out hives, I got two of my fingers cut off, so I was not able to do any thing for a long time. Up to date we have got drones flying. Our bees are getting some honey from fruit-blossoms now. Pa is going into the bee and poultry business. We are digging a henhouse on a hillside. The name of our apiary is the Modern. **OLIVER ROUSE.**

Santa Fe, Mo., May 3, 1888.

Well, my young friend, you have told lots of good things, and one not quite so good—that is, you cut off two of your fingers. Little boys and girls should be very careful around buzz-saws. Some boys are naturally careful, and have very few scars on their fingers, while other boys will have their fingers marked up with scars. Such a boy is pretty apt to get his fingers cut off if he has very much to do with a machine that would just as soon cut off a finger as to scratch it. I do not mean to say that you are careless, but I do want to caution those of you little folks who help papa around a buzz-saw.

A VALUABLE SUGGESTION FROM A LITTLE GIRL; A BUGGY-WHEEL, AND HOW IT MAY BE USED DURING SWARMING.

My father's queens are all clipped, and I sometimes catch the queen for him and put her in the cage and put the cage on the pole, and then the bees cluster on it. When the wind does not blow, we have an old buggy-wheel that we put the pole in; but when the wind blows I hold it for him; and when two or three swarms are out at once, and the wind doesn't blow, we have more wheels than one.

Once when pa went away, ma and I had to do it alone. Ma had to go up the tree and get them in her apron, and then she came down, and they stung her. She had to go around the house, because there was a wall all around the apiary; but there was a gate in the wall on the other side of the house. **VIOLET FOWLS**, age 9.

Oberlin, Ohio.

Thank you, Violet. You have given us a valuable idea. Coming, just as it does, at this time of year, it will probably be put into application forthwith. When I was at your papa's one time he showed me his buggy-wheel, and I at once saw that it was putting into practical use what otherwise would be lying around doing nobody any good. But I had almost forgotten it till now. Around almost any farm, I suppose there is some old unused buggy-wheel or wagon-wheel that can be utilized in the way you suggest. A good many times during my younger days, when I used to catch swarms with a rake, to which was attached a cage containing a clipped queen I used to try to shove the handle down in the ground; but the ground was always too hard, and so I had to stand and hold the rake. If I could have had a buggy-wheel, I could have rolled it directly beneath where the bees were flying thickest, and stuck the rake into the hub. Every thing would have gone on lovely, and I, at a convenient distance, could have watched proceedings. Perhaps I should have worn a complacent smile on my countenance, as Rambler told us about in our last issue. Now, friend Violet, for giving us this suggestion you may select any thing from the dollar counter which you may choose from our price list, and we will send it to you free of charge; or, if you prefer, we will send you a dollar's worth of counter goods. Come, now, little folks; we want you to tell how you hive bees.

SIT OR SET.

HOW EVEN LITTLE FOLKS MAY KNOW WHEN TO USE THESE WORDS CORRECTLY.

WHO "does" the grammar for GLEANINGS? I do not suppose that Mr. Root, with all the thousand things that he has to do, pays any attention to it. Ernest has been to college, and, of course, knows what is right, but perhaps he is too busy to see to it; and then it comes on the proof-reader, I suppose. Now, there has never been any thing very bad in GLEANINGS' grammar, but I guess we might as well have it just right if we know how; and to help have it right, I want to recommend a little book called "Powell's How to Talk," that is very useful and suggestive. It says, that when a man *sits* in a chair, he *sits;* but if we *place* a pitcher on a table we *set* it there. It seems to me that this is a distinction easily remembered. If the verb is used in the sense of resting, it is *sit;* when used in place of *put*, it is *set*. Well, then, if I put a hen on a nest full of eggs in order that she may hatch them, I *set* her; i. e., I place her on the nest; but the hen, when so placed, *sits;* she is a *sitting* hen; but the eggs that she sits on are a *setting*, are they not? They are placed there and can not get up and go away until they hatch out. I believe, however, that hens are not mentioned in "Powell's How to Talk." He says, that if a thing goes up of itself, as the wind, smoke, etc., it *rises;* if a house or a stone is lifted up, it is *raised*. Most of the explanations given are short, and easy to understand. I think that every mother of a family ought to have one, and enforce its teachings. It is hardly worth while for children to study grammar at school, if we take no pains to have them use it. In most of the schools in Illinois, "Powell's How to Talk" is used for children just learning to read, and it seems to me that it must have a good influence on the coming men and women.

Now, I suppose a hundred readers of GLEANINGS are getting ready to say, "Why, Mrs. Chaddock, you do not use such good grammar yourself, that you should set yourself up to criticise other folks." But I am going to forestall all that you can say, by owning up to all my sins in that direction. Grammar is an unintelligible mix-up to me, without sense or reason. I do not blame children for not comprehending it. I never could. There's too much of it, and it is too complicated. I know a good many rules that I have learned in different grammars; but most of those rules have a dozen exceptions, and how am I to know whether I am to go by the rule or by the exception? Last summer I gathered up all the grammars about the house and studied them. I had six different kinds, but I can not understand it. I want to, and I try to put my mind into a receptive condition; but it gets all jumbled up. But there are a few things that I can understand and put in practice. I can keep from saying "ain't" and "hain't," and such glaring errors as these; but some of the modes are too much for me, and this is the reason that I want the folks who print GLEANINGS to look sharp, so that they will not let any of my grammatical errors creep in. I was brought up on Brown's Grammar. It was the kind used in the "Friend" school. It was a "thee" and "thou" grammar, but we did not go by it when talking. Instead of saying "How art thou?" when we met a friend, we said, "How is thee?" When some traveling preachers came around and said "thou" to us, we all took it up and said it to each other for a week or two, then went back to "is thee" as of old.

The other day a young woman (who is going to be a school-teacher) was riding to town with us. She talked all the time, and said "ain't" continually. I told her that if she would not say it any more till we reached town (we had a mile to go), I would give her five cents' worth of candy. She agreed, but said she felt sorry for me. She went on talking, and before a minute had passed she said *ain't* again. I told her of it, and she wanted me to try her again. I did so, and again she failed. I gave her five trials, and she failed every time. Then she gave it up in despair. MAHALA B. CHADDOCK.

Vermont, Ill., April, 1888.

Accept our thanks, Mrs. Chaddock, for your very plain and instructive talk on the correct use of these two little verbs which are so often used interchangeably. It is just one little letter that makes all the difference between the correct and incorrect use of "set" and "sit;" I hope, therefore, all the boys and girls who read this will take pains to bear it in mind in future. If you learn to speak correctly when you are young, you will find it easy to continue to do so throughout your life; and if you get into ways of careless speaking, it will be quite a hard matter to break the old habit. It is just as easy to learn a good habit as a bad one. As to the proof-reader, we will let him speak for himself, which he does in this wise:

It is a matter of daily occurrence to mark "sit" for "set," and sometimes "set" for "sit," in the copy intended for GLEANINGS, and any interchange of the two words is simply a typographical error. The general tendency is to use the word "set" in a proper way, and also to the *entire exclusion* of "sit." A child might say, "I *set* the old hen on her nest, and then I sat down and watched her;" but he will never say that he *sat* the hen on the nest. It is a very common error, by the way, to say, "I *set* there yesterday," instead of saying "*sat* there." How many there are who say, "I guess I will *lay* down a while and rest," and yet they forget to tell us what they propose to lay down! They mean they will *lie* down.

OUR HOMES.

And the Lord God formed man of the dust of the ground, and breathed into his nostrils the breath of life; and man became a living soul.—GEN. 2:7.

THE above is one of my favorite texts. Very likely I have used it before; but it does not matter if I have. I like the text, and I like to think of it. Even if I am made of the dust of the ground, it makes me glad to think that it was God who made me—to think that I came from God's hand. There is much that is dusty and earthy, I grant, in humanity; but there is, thank God, something Godlike after all. Bronson Alcott, when he talked to our Sunday-school some years ago, told the children that he had sometimes thought that, when God made us, he put a little pinch of himself in each one of us, and that little pinch remains still, even in the most hardened sinner. It can be dug out and made to come to light, if we take the right method.

I presume that every one of my readers knows how enthusiastic I have been for a few years back in seeing things grow. This 12th day of June every thing is beautiful and lovely. Our ten acres of tilled and highly fertilized ground is radiant with different forms of vegetable life. Some of the potatoes are white with blossoms. Our improved squashes, under the influence of summer showers and sunshine, and rich mellow soil, are unfolding and spreading out to the sun great leaves of wondrous beauty. Every morning, noon, and night I can see God's agencies have been at work. Unseen hands are busy at work over these ten acres, bringing out forms of wondrous beauty and intricacy. Now, you may smile when I tell you that, for the past ten days, I have become so much interested in seeing something grow besides plants, that I don't know but I am on the verge of a new hobby. You need not feel troubled, however, dear friends—that is, if any of you have felt troubled because of so many hobbies; for if God calls me there can be no danger in my dropping bees, plants, and every thing else, to hasten to do his bidding. We want to be sure, however, in changing about from one thing to another, that it *is* God's bidding, and not some changeable, selfish freak of our own.

About two years ago the good people of Medina thought fit to put me on the school board. I told them they could not find a busier man in the whole county, and perhaps few who had more responsibilities and cares on his shoulders already; but evidently they thought, as some one has said, that if you want any thing done promptly and well, put it in the hands of the busiest and hardest-worked man you have in the community. I told the good people I would do what I could; but, to tell the truth, I have not done very well, and I fully expected they would be glad to let me go and put some better man in my place. This present year it falls upon me to take the office of president of the board of education. I knew, when I was constituted president, what the president of the school board ought to do, especially in regard to visiting schools; but, oh dear me! it just seemed as if I could not leave important and almost sacred duties here to go and visit the schools.

About ten days ago somebody put into my hands a little envelope, about two inches long. It was in juvenile handwriting, and a juvenile signed his name to the little epistle inside, asking me to visit their school. I lost the little letter before I noticed which one of the eight departments it emanated from. But about half-past two on the day appointed I scraped the thickest of the clay from my boots, blacked them up a little, washed my face and combed my hair, and "went to school." I made a mistake and got into the wrong school—that is, if it is possible for the superintendent of the board to make a *mistake* in going into *any* of the schools at any time. I am now going to tell you what I saw and learned in the first primary department. They were having exercises in mathematics—yes, mathematics for children only six years old; and not only figures, but language, etiquette, and, above all, sound common sense. The teacher did not have any book in her hand, but the eyes of every pupil were upon her. She began something in this way:

"Now, who will tell the story about the bird's nest?"

Almost every hand was raised. She finally signified a little girl whom she called Marcia to tell it. Marcia began:

"I saw three birds' nests in an apple-tree, and in each nest were two little eggs."

Marcia now came to a standstill.

"Very well," said the teacher. "But can't you now tell us how many eggs there were all together in that apple-tree?"

Marcia twisted, and looked one way and then another, but did not seem equal to the task. After Miss Smith had waited, as it seemed to me, a good while, instead of answering the question and telling Marcia there were six eggs all together she told her she guessed she would have to go up to the blackboard and make a picture of the three nests, telling her to put two eggs in each nest, and then I understood for the first time why such a great variety of pictures were on the blackboard and about the room. I mentally decided that Marcia was quite unequal to the task of making any thing like a bird's nest, to say nothing of eggs inside; but to my surprise she made three handsome nests, eggs and all, a good deal better than I could have done it myself. While Marcia was making her drawings, Miss Smith asked the school a multitude of questions, such as, "What is the half of 12? half of 10? half of 6?" and so on. These were all answered promptly, until she bade them all look out for a hard one. The hard one was, "What is the half of 5?" A little girl who raised her hand answered *two*. Now, note the teacher's method. She reached behind her, and from some shelves containing a great variety of things to interest juveniles she selected five slender sticks. These were handed to Bertha, asking her to count them. She promptly reported there were exactly five sticks. "Now," said Miss

Smith, putting out her hand, "Give me exactly half of them, Bertha."

Bertha handed the teacher two.

"Why! is that the way you give anybody half, Bertha?"

Bertha, with open mouth, looked first at one half and then at the other.

"How many have you left, Bertha?"

"Three."

"How many did you give me?" and the teacher extended her hand with two sticks.

"Two."

"Well," said the teacher, "when you are asked to give half, if you keep 3 and give 2, you are cheating. If you give me half, we should both have an equal number, and yet you have 3 sticks and I have only 2."

Bertha looked from one lot of sticks to the other, and seemed greatly puzzled. Finally she extended one of her remaining sticks to the teacher.

"Well, now," said the teacher, "I have 3 and you have only 2. That is not dividing, either." The child finally recognized that the trouble lay in the single odd stick, and she held it in her hand hopelessly until the teacher suggested that somebody might give them five sticks of candy to be divided. The sticks of candy opened the door to the small intellect; and as the solution of the problem made its way through her little mind, you could see it in her face as she looked up smilingly, saying, "Oh! if it were sticks of candy we would break one in two."

"Well, then, Bertha," said the teacher, "what is the half of five?"

"Two sticks and a half a stick!" replied Bertha, feeling happy because she had arrived at the truth, without being told.

By this time Marcia had finished her nests and eggs on the blackboard. Said the teacher, "Well, Marcia, how many eggs are there in the three nests?"

Marcia could not quite grasp the situation even then, until the teacher added, "Suppose each egg should hatch out a little bird —a bird from every egg, Marcia, how many live birds would there be?"

The suggestion of the little birds appealed to the childish mind as before, and she replied, with a smile on her face, "Six."

Dear reader, I wonder if there is any just such patient, kind, gentle leading in your home. Do you ever get weary in well-doing when you tell a child over and over some simple thing? Do you ever feel like saying, "I believe I have told that child a dozen times to shut the door when she goes upstairs to bed, and there it is wide open now"?

Line upon line, precept upon precept, is what does the work. I enjoyed going to school so well that I went the next day, and the next and the next. I not only smiled myself to see these little intellects grasp ideas, and take hold and grow and expand and develop, but I made the pupils smile, and sometimes the teacher also. When I said something about talking to the boys on the matter of tobacco, the superintendent, Mr. K., warmly seconded my plan; and not only that, he suspended exercises, and gathered the pupils into two large rooms, and told me to talk just as long as I wanted to.

I want to speak of the wonderful progress they are making in music in our school, and, I think very likely, in all the schools in our land. As I came into one of the rooms, Prof. Harding, of Oberlin, was instructing the second-primary room. By taps of the bell, the teacher brought all the little slates on top of the desks, pencil in hand, in readiness for work.

"Now, then," said the music-teacher, "write down on your slates what I sing."

He waited a little for them to make a staff, and I began wondering whether those urchins had skill enough to draw five straight lines. At it they went, as if they were parts of a machine. The boy nearest me made such surprisingly straight lines, evenly spaced, off hand, without any ruler, that I looked in surprise at the next one; but so it was all over the school. Then Prof. Harding sang a measure of a hymn, and every slate took down every note. I was asked to walk through the room and look at the slates. They all had notes just alike. But I was still more astonished when the teacher desired one pupil after another to stand up and sing just what he sang. Then he told them to write another. To show me that they were not only taught music but sound business principles, he asked me to notice while he opened the door and talked to somebody outside; then he knocked down the pointer, which came on the floor with a clatter, and finally he raised the window and called to somebody outdoors. Scarcely a pupil looked up; and when he was ready, the music was all written on each little slate. In another room, more advanced, they had on the board what they called a "blackboard piano." Friend Harding took a couple of pointers, one in each hand. He then desired the boys of the school to sing the notes he touched with the pointer in his left hand. They were to sound the note just as long as he held the pointer on the key. The girls, in the same way, sounded the notes touched by his right hand. To my great astonishment the teacher played on those human juvenile voices exactly as if they were the keys of an instrument, for each one sounded every note exactly as he touched the blackboard; and the melody of those voices, especially the small boys singing bass, was some of the grandest music I have ever heard.

Well, he played piece after piece on this blackboard piano; but pretty soon he struck on something that ran up higher than the scale-board, so his music had to stop right in the middle, while he laid down a pointer, grasped a piece of chalk, and made the instrument large enough to compass the piece. When his marking was finished he took the pointers again and proceeded, and his class finished up the piece just as if there had been no interruption. Another exercise was to point out any one of the forty or fifty pupils, and bid him stand up and start some familiar song, directing the others to fall in and support him as soon as he started. When the whole school was well under way, by a motion of his hand they all stopped, and another pupil started some other piece. This they did in rapid succession for ten or a dozen songs, and each piece was a different one. I could not help thinking of what a wonderful help these trained children would be in a prayer-meeting, Sunday-school, or any other gathering where singing was desired. And now it occurred to me why it is that of late years we have such excellent singing in our prayer-meetings and Sunday-schools, and without any apparent effort on the part of any one. Our children are brought up to it.

In another room, more advanced, one of the pupils was told to take the floor and drill the school. This he did until I was still more astonished. Mr. Harding asked me to notice this spirit of independence with which they sang. A little girl was desired to stand up and sing, which she did without any hesitation, and with perfect composure. Then two were desired to stand up at the same time, each one to sing *a different piece of music.* This they did, and each one did her part perfectly. Then the school was desired to sing a piece in the proper key; afterward a little higher, then higher still, until only a few of the girls could reach the key at all. Then they went down, until only a few of the boys could, with their lowest bass, reach it. When the master tried to put them out by means of various interruptions he could not do it — they were at home, and handled their voices with as much confidence and skill as an expert mechanic handles his tools. These children will probably never know the pain and mortification their parents suffered in trying to take part in some public meeting; neither will they ever know how much their parents have left undone *through life* because of bashfulness and the *fear of men* In our bee-conventions there are only a few, comparatively, who are perfectly at home in a public discussion. I have not time here to mention the progress that is being made in other departments. Go and visit your own schools, and you will see it for yourself.

The world is constantly discussing again and again the problem that lies before us in regard to sin and crime. Our civil war is over, but we have only just recovered from a sort of civil war between labor and capital. Anarchy is not yet dead in our land; our penitentiaries are constantly kept full; and, if I am correctly informed, most of them need continually to be enlarged. Our worst criminals so often escape justice that good men and women are often tempted to think that the cause of righteousness will never prevail. Every day brings to our ears the accounts of some awful tragedy that so startles us we are tempted to lose faith in humanity, and sometimes I fear we come pretty near losing faith in God. Our laws are so slow and imperfect that every little while criminals are taken from our jails and executed by a crazy mob. And thoughtless people declare that criminals had better be punished in this way than not at all. What shall be done?

In my last talk to you I mentioned that, when Jesus told Peter to put up his sword, he reminded him that more than twelve legions of angels were ready to do his bidding, if he wanted them. As our Lord and Savior did not call for them, we must take it for granted that he decided they were not wanted. In his last words to his little band of disciples, he gave them a commission. These eleven volunteers were to subdue the world; but they did not need armies of soldiers; they did not need legions of angels; they did not need swords nor pistols, nor firearms of any kind. How, then, are they to subdue the world, and to root out sin from the human family? Why, dear friends, it is all to be done, if I am correct, in the line of what I have been telling you to-day. "Not by might nor by power, but by my Spirit, saith the Lord of hosts." The work being done in our schools is to counteract sin and crime, and to do away with the necessity of jails and penitentiaries. I believe the eleven teachers employed in the schools of Medina are all Christian workers. They are on hand at our prayer-meetings, Sunday-schools, and religious services. To our teachers is intrusted the sacred responsibility of molding and forming the minds of our children. Do you, as parents, encourage them and support them by your prayers and sympathies as you ought to do?

I told you, some years ago, of a hot discussion I had with an intemperate man who had drank all his life, and who declared he *meant* to drink as long as he could draw breath. He parried every blow, and I had reached the door, thinking my visit had been an utter failure. One more thought occurred to me. Said I, "Mr. A., do you wish your boy to grow up exactly such a man as you are?"

He did not answer. I then repeated the question to him with more emphasis. I charged him to answer truly, before God as a witness. "Mr. A., do you wish to see this boy of yours exactly such a man as you are when he grows up?"

The reply came finally: "No, b'gorra, I don't."

I had been searching through the dust of the earth, and the accumulated rubbish of more than half a century, for the "little pinch of God" that remained in the man, and I had found it. Now, dear friends, we are here, as I suggested in the commencement, and we are in very truth but dust of the ground. Shall the God part that is in us be developed, and take root, and grow? or shall Satan extinguish this spark of divinity? Go visit the schools where your children are educated, and see if you do not decide very soon that their growth, their care, and their development is of more importance than the crops, or commerce, or houses or lands, or, in fact, any thing else that this world can furnish.

If a great part of the responsibility of bringing a human being step by step from the dust of the earth to a point of sufficient intelligence and capacity to *see* and *know* God, then what a sacred, what an *awful* responsibility rests upon our teachers! We are told, that "the pure in heart shall see God;" and who but the teacher who molds the infant mind has so much to do with encouraging both purity and godliness? The teacher who *does this* should have the best *pay* and the best *encouragement* that our land affords.

REPORTS ENCOURAGING.

SWARMING AND HONEY-DEW.

SINCE the 1st of June, bees are doing well. Some are at work in the sections, others are preparing to swarm. To see bees swarming and working in sections again is something new with us, last season being so poor nothing of the kind happened. We are anxiously looking forward for a good honey-flow. White clover is not very promising, though honey-dew is plentiful. Nearly every hickory bush is covered with it. Early in the morning, the woods seems to be alive with swarms. At 10 or 11 o'clock the dew dries up until late in the afternoon, then work begins again in good earnest till dark. This year the honey-dew began coming in as early as the 20th of May. Two years ago, when we had such a heavy honey-flow, it came about the 1st of July. Should it continue to last until the 1st of August, we shall have "bug-juice" in abundance. JNO. NEBEL & SON.

High Hill, Mo., June 8, 1888.

CHAFF HIVES IN THE VICINITY OF BLOOMFIELD, KY.

I put 14 hives into winter quarters, with upper story packed with chaff. All came out very strong in spring—rather too strong to suit me, for they commenced swarming on the 8th day of May, and 8 out of 12 have cast very large swarms.

Bloomfield, Ky., May 21, 1888. W. J. GORE.

HONEY FROM THE SOUTHERN POPLAR.

We are having a fine yield of poplar honey, with a holly flavor, in some localities. Just now there is much honey-dew. Sourwood has been injured by a late frost. We can not tell yet how far the crop will be affected. DAVID STRANG.

Lincoln, Tenn., May 23, 1888.

SWARMING EARLIER THAN EXPECTED.

Bees wintered remarkably well in this neighborhood, and swarming commenced earlier than I ever before knew it. We had one swarm here April 27th; 2 on the 30th, and several on the 2d and 3d of May. We had a fine flow of honey last year in September and October, that gave them plenty of stores for winter—a thing unusual here.

MILTON HEWITT.

Perryopolis, Pa., May 21, 1888.

SNOW 24 INCHES DEEP, MAY 21, IN MINNESOTA.

Bees are doing fairly well in this section, considering the cold backward spring. There are only two or three days in a week when they can fly out for water and pollen. I have just measured the deepest snowdrift within 80 rods of my apiary, and find it 24 inches deep. This is snow that fell in November and December. Do you want to come to Minnesota to start an apiary? A. F. BRIGHT.

Mazeppa, Minn., May 21, 1888.

WINTER LOSS ONLY 25 % FROM VARIOUS SOURCES, AS REPORTED BY H. D. CUTTING.

I have written to 20 persons in this locality, and have reports from nearly all of them. I find that the per cent of mortality is 25. Mr. Gander writes me that he lost 45 per cent in his bee-house. That is the greatest loss I have heard from. My bees were all in the cellar except 2, which were on summer stands. I commenced putting them in the cellar in October, and finished Nov. 11. Some that were put in in October were not taken out until April 28, and were in good condition. They had plenty of pollen and honey. I could see no difference with natural stores or sugar. Those in the upper tier, 3 deep, contained more water than those on the bottom tier. My cellar is very dry, and the thermometer remained at 36 to 40. It seldom went above 40. By opening a window I could keep the temperature at 40 or below. The cellar was very light. The greater portion in the cellar had one fly in March; but those put in Oct. 27, and taken out Apr. 28, were in just as good condition. How I wish I could just call on you for one day, and look over your many interesting experiments!

Clinton, Mich., May 4, 1888. H. D. CUTTING.

REPORTS DISCOURAGING.

IS THAT WINTERING PROBLEM SOLVED?

I PRESUME you want reports discouraging on wintering bees. We went into winter quarters with 55 colonies, and have now only 34, and some of those are weak. Prof. Cook says, on page 348, Vol. XV., that the winter question is solved. Does losing his 50 per cent look that way? He says that they had not sufficient stores. This I know was the case with me. Although I may not be wholly right, I should like to express my opinion of our own loss. The bees had *no* honey in their hive after buckwheat bloom until golden-rod, and then a few colonies filled their hives with this kind of honey, sufficient to winter, but it was late before they had finished gathering honey, and those that did not get enough I undertook to feed with sugar syrup. As this bothered me about crusting over, I used tartaric acid, as per Heddon, which answered the purpose, as I thought, very well; but when I came to examine them in February, I found 5 or 6 of our colonies dead, with syrup hard in the combs, partly sealed over. It was all alike, whether sealed or not. Later, I found other colonies partly dead with their stores in the same condition. These spring-dwindled, owing partly to their weak condition and partly for lack of bee-bread. I am more and more convinced that plenty of bees, and good honey with bee-bread, so the bees can reach it in early spring, has more to do with the wintering than all of the packing, ventilation, cellars, or repositories combined. My bees were well packed on their summer stands with leaves, using division-boards to get them as compact as possible. J. L. HYDE.

Pomfret Landing, Conn., May 24, 1888.

I think you may put us in Blasted Hopes, for all our bees died last winter. To be sure, *all* was but one hive; but it left us as much without any as if we had lost one hundred. We lost ten or twelve before last winter, but we mean to try again.

Douglas, Mich. JENNIE REID.

SEVERE WINTER LOSSES NEAR ELSIE, MICH.

Bees wintered in common hives on summer stands, are reported 50 to 75 per cent short of autumn count. Wintering in cellars seems to give the best satisfaction in this vicinity. Although our bees have have had but very few days of weather suitable for a flight, yet they seem to have been making hay while the sun did shine, for we find the frames well filled with brood, and now they are working on blossoms quite busily. I. A. WOOLL.

Elsie, Mich., May 21, 1888.

OUR OWN APIARY.

CONDUCTED BY ERNEST R. ROOT.

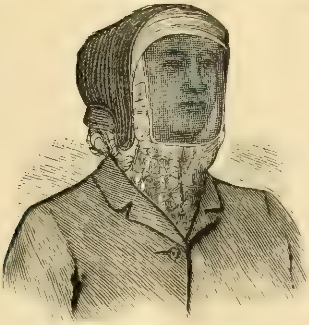
FACE AND HEAD PROTECTION FROM BEES IN HOT WEATHER.

AS there was so much matter for this department in this issue, the subject of swarming, as it has occurred in our own apiary during the last few days, is mentioned elsewhere. I therefore discuss only the subject as above.

Every bee-keeper who runs for honey, probably has occasion to make use of veils, either all the time or occasionally. The necessity of using them will depend very largely upon the race of bees used. If they are selected pure Italians — gentle, and good honey-gatherers, the head protection will not require to be used very often, if we except shaking off combs; but if, as is the case with a great many bee-keepers, the bees are hybrids, or perhaps have a little dash of Cyprian or Holy-Land blood among them, a veil will be quite indispensable at least a part of the time. Our bees are so very gentle that they rarely volunteer an attack. I never wear a veil, and the boys seldom do. But, mind you, I prefer to wear one when I am handling Cyprians. They have such a straightforward sure-shot way of inserting their weapons that one really has no time to avert the attack from his face not protected.

Some time ago I mentioned to you the bee-hat and bee-veil which I like the best. Since that time, Mrs. L. C. Axtell has described her face wear in the apiary. In order that the reader may more clearly understand, we have illustrated her bee-bonnet. The following is the engraving, together with her letter relating to it.

Dear Mr. Root:—I send you by to-day's mail my bee-bonnet, as I thought you could get a better idea of it to see it than a photo would convey.



MRS. AXTELL'S BEE-HAT.

Now, don't make fun of it, even if you would not like to wear it. It has already been worn nearly a season. If tarlton were sewed to it instead of calico, it would be cooler; but bees sting me so much around my neck that I prefer something thicker. I tuck the frill into the neck of my dress, and fasten. The loose piece on top, I sew tightly over the front; but as it projected out so far, I turned it back to send by mail.

One year I sewed a piece of wire cloth into my sun-bonnet, which made me a very good face protector. Old ladies of 60 or 70 have one or more of those bonnets in the house. We have used the cheap chip hats, and have some in use for our help now, but they soon draw down out of shape.

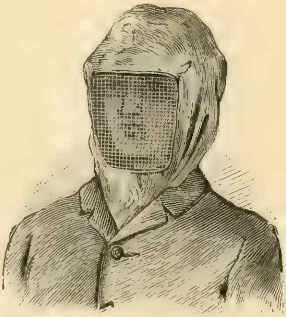
Tarlton veils, our help runs through them so fast, and get holes in them so soon, that they get so many stings we do not try to keep them any more, except for Mr. Axtell's use in the hottest of weather. MRS. L. C. AXTELL.

Roseville, Ill., April 20, 1888.

From Mrs. Axtell's description in a former article, one might imagine that the head wear was not attractive in appearance. At any rate, Miss Dema Bennett, in an article elsewhere, thinks we get a fair idea by looking at P. Benson's pictures. But after all, Mrs. A.'s head-dress is not so very unbecoming on the individual pictured—do you think so, Miss Bennett? But for most people the cloth hat and veil would be more becoming, perhaps.

A VEIL WITH HORSE-HAIR-NETTING FRONT.

There is a great difference among bee-keepers as to what kind of facing is best for veils. Mrs. Axtell, Mrs. Harrison, and I believe Mrs. Chaddock, prefer the wire cloth. John C. Capehart prefers an oval glass front. We here at the Home of the Honey-Bees prefer Brussels netting. But our friend L. Stachelhausen, of Selma, Texas, uses faced netting, skillfully woven from horsehair. Friend S. sent us one. As the veil is a rather novel one, we had our artist make a picture of that also.



STACHELHAUSEN'S BEE-VEIL, WITH HORSEHAIR-NETTING FRONT.

His letter of description is as follows:

Mr. Root:—For many years I have tried different veils; but the kind I use now gives me the most satisfaction. The face, I make (or, rather, my wife does the work) of horsehair, by hand. This face is sewed in a bonnet-like veil, but could as easily be sewed in one which can be fastened to a hat, like yours; but I prefer my construction. These horsehair faces are the best to see through, much better than Brussels net, especially if black horsehairs only are used. Another advantage is, that the veil is stiff, and keeps many years. If you leave it out in the open air all the time, the cotton cloth may rot; but the face of horsehair will remain as good as ever.

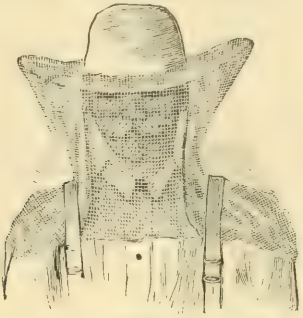
The making of these faces is a laborious and slow work; and my wife says that a dollar for such a veil would not be too much; but she is willing to make them for that amount.

Selma, Texas. L. STACHELHAUSEN.

We are sorry that we can not reproduce in the cut the skillful work of our good friend's wife, as shown in the weaving of the horsehair. The meshes are quite large, but just small enough to exclude bees. It presents little if any obstruction to the eyesight, though a comparison between this and the Brussels netting which we use shows but little difference. No doubt the horsehair will be more lasting. To some, the latter portion of Mr. Stachelhausen's letter may savor somewhat of a free advertisement. But, no matter. Any one who can show such skill in such work deserves a notice.

THE BEE VEIL AND HAT I PREFER.

Some time ago I described to you the bee hat and veil which I prefer. I did not then, however, give an illustration of the hat and veil, and I do so now.



BEE VEIL AND HAT RECOMMENDED BY ERNEST AND THE HELPERS IN THE APIARY.

Whenever I work in the apiary I can not endure to wear a coat and vest. With these articles of clothing removed, there is no place to tuck the veil, unless, forsooth, down the neck, and that is not the best place in the world either. Myself or one of the boys, I don't remember which, soon found that, by pulling the corners of the veil under the suspenders until the front and back were drawn tightly to the shirt, not a bee could enter, and the wearer could enjoy perfect security; and, besides, it was much cooler and pleasanter than to have it tucked in a wad under the coat collar. It is also quickly removed and quickly put on.

For the benefit of some of our new subscribers, perhaps I might say that the hat is made entirely of cloth, with the exception of a steel hoop which holds the brim out. The upper portion of the hat is of a light drab color, while the under side is of a dark green, making it easy and pleasant upon the eyes. It is so made that it is adjustable to any head, and can be folded so as to go in the pocket. It is so light that its weight is imperceptible, and the broad brim keeps the veil away from the neck. It clings firmly to the head, and the cool breezes of summer (when there are any) can pass through the porous material. The wearer is not only protected from the glaring rays of the sun, but he experiences a delightful coolness about the head when a little breeze circulates.

Perhaps I should say, that, at certain times during the season, when no breeze is circulating at all, the crown of this hat affords hardly sufficient protection. But this objection can be removed almost entirely by putting in the crown a few large leaves of plantain.

Of course, I prefer the head-wear shown in the last engraving. I haven't tried the other two in the apiary but I fancy they would be too warm. I can imagine that great drops of sweat would run down my face and neck so as to feel decidedly uncomfortable. I like to have the air circulate clear around my head, face, and neck. But no doubt Mrs. Axtell and Mr. Stachelhausen for equal reasons in point of comfort would prefer their own head-wear.

IS IT WISE TO DISPENSE WITH A BEE-VEIL ENTIRELY UNDER ALL CIRCUMSTANCES? ABOUT A MAN WHO WON'T WEAR A VEIL.

Is it necessary to receive many stings upon the face? Perhaps you may be aware (in consequence of foul brood in our apiary last season) that we get our bees, for filling pound orders, from Neighbor H., who has a number of out-apiaries, located three or four and in some cases eight or ten miles away. One day I accompanied him to one of these apiaries Not knowing just the kind of bees we should have to deal with, I decided to take a veil along, and I was not sorry that I did. Neighbor H. refused to take along any face protection whatever. I concluded not to put my veil on unless obliged to. We got along very well until we commenced to put the bees into pound cages. The day being a little raw and cold, the bees did not regard our intrusion with favor. They began to try to frighten us, and then to sting. At this juncture I put on the veil, and then, in my security, said, "Now, don't you wish *you* had a veil on?"

"No, sir'e; I *wouldn't* bother *with* any such thing on my *head*."

The last part of his sentence was jerked out somewhat more emphatic, as he drew forth from one of his eyelids a sting; another from his lip, and another from the back of his neck. The italicized words in the sentence quoted shows the point of utterance when the stings were received. Mr. Harrington received something like twelve or fifteen stings. I got along with one or two. In shaking bees off from the frames on cold raw days (and you know that orders have got to be filled), it incites them to stinging. It is under these circumstances that I prefer to wear a veil. *I* think that every bee-keeper should get along with as few stings as possible. The drug *apis mellifica*, administered in homeopathic doses, may do very well; but when it is forced hypodermically by bees, in big doses, the effect of so much poison in the system, it seems to me, may not be beneficial.

I have labored with Neighbor H. on the folly of such a course, but to no avail. This morning his face showed the effect of the hard stinging yesterday. How different people are! I presume there are a good many Neighbor H.'s as to the matter of stings. There is also a large number of prominent bee-keepers who will never be seen in the apiary without a veil. Again, there is a class like myself who will dispense with one as much as possible, and wear it where necessity calls for it.

AN ABSCONDING SWARM RECOVERED.

Later.—June 14th.—Yesterday afternoon, about 4 o'clock, word came that a swarm had left the swamp apiary and had clustered about an eighth of a mile north, on a basswood-tree. Mr. Smith and I hastily gathered up all the paraphernalia we thought might be necessary. Arriving at the place where the swarm was said to be, we hastily scanned the trees—but no swarm. I began to think they had surely left us, when, lo! as I was circling around one of the trees, and glancing downward, I espied about eight pounds of bees hanging on the under side of a hollow rotten log. It was the work of but a few minutes to scoop the bees on to frames of foundation, and then place them in the Simplicity hive. What bees could not be secured in this way were jarred off by lifting the log up (it was not a very large one) and dropping it on the ground. A few minutes more, and we had the satisfaction of carrying the swarm back, first climbing a wire fence, and then following the railroad track until we reached the apiary. The very thing lacking in this adventure (?) was that we didn't have a chance to use our swarming tools which we brought along, or climb perilous heights. But, never mind; may be we will yet.

GLEANINGS IN BEE CULTURE.

Published Semi-Monthly.

A. I. ROOT,
EDITOR AND PUBLISHER,
MEDINA, OHIO.

TERMS: $1.00 PER YEAR, POSTPAID.

For Clubbing Rates, See First Page of Reading Matter.

MEDINA, JUNE 15, 1888.

In all thy ways acknowledge him, and he shall direct thy paths.—PROV. 3: 6.

CORRECTION.

SOME way or other one of our printers made our friend M. H. Hunt's ad. in last issue read "10 per cent off from prices given in the price list," etc. It should have read, "10 per cent off *on sections* from prices given in price list." The customers of Mr. Hunt will please take notice.

OUR SWARMING ISSUE.

IN this number our readers will notice that we have given some prominence to swarming and swarming-devices. From the nature of the case we could not make this *entirely* a swarming issue; but we have done so as far as we could in justice to the writers of the very excellent articles which we have on other subjects in this number.

ENGRAVINGS.

IT is with no little feeling of pride that we say to our readers that the engravings for GLEANINGS are executed, with a very few exceptions, especially for its own pages. Even the illustrations representing things in foreign journals have been reengraved at our own expense. We are very glad to have our friends send us sketches of new implements which they have found to be valuable in their own experience. Some of them, which have been sent in for our inspection, we do not reproduce, either because the idea is old, or because it is not of sufficient interest for the mass of bee-keepers. Do not, therefore, be disappointed if you do not see your drawing reproduced.

DR. MASON'S PICTURE IN THIS ISSUE.

WE take pleasure in calling attention to the very excellent portrait of the president of the N. A. B. K. A., found on page 475 of this issue. This, as also the preceding ones which we have had recently, has been executed by the new process; and if the photograph is natural, the reproduction must be so necessarily. We sent a proof of the engraving to Dr. Mason's family, and in reply Mrs. M. says:

> It looks very life-like. I do not see how an engraving could be made to represent any one more naturally. The children say, that if any one sees it and then sees their father they will know who he is, for it looks just as natural as life. All to whom it has been shown say that it is just like him.

The same may be said of the other recent portraits which we have made—they are exactly true to nature.

HOW TO PUT FOUNDATION INTO WIRED FRAMES.

As we have had some inquiry as to how to put fdn. into wired frames we give our method, as follows: Make a board ½ inch thick, and the right size to fit nicely inside the frame. Cut a groove in it across the middle to let the tin bar in it when you lay the wired frame on it. Have your fdn. cut the right size to fit inside the frame, and warm enough so the sheets will not crack when handling. Next take a wired frame with the diagonal wires uppermost. Enter the lower left-hand corner of the sheet of fdn. from the center of the frame under the diagonal wires and over the vertical wires, and in the direction of the corresponding corner of the frame, at right angles to the diagonal wire. When you get this end in place, draw up the right-hand lower corner, wrinkling the center of the sheet toward you until the corner of the sheet passes under the diagonal wire. Then draw it down to its place as you did the other end, and the most difficult part of the job is over.

Now warm the sheets till the fdn. is quite pliable. Lay the frame on the board first described, and level the sheet of fdn. down with Blood's roller. Then with the wire-imbedder run over the wires on each side, pressing them into the fdn., and you are done. With such a frame you will get stronger combs than you can in any other way that we know of.

SAW-PALMETTO HONEY EQUAL TO CLOVER.

J. N. HARRIS, of Charlotte Harbor, Fla., sends us a small vial of saw-palmetto honey, and desires to know if we do not think it compares favorably with gilt-edge clover honey. Upon inverting the vial the honey was so thick that it would not run out. We could taste it only by passing a knife-blade into the vial, and drawing it out. The honey has a very slightly aromatic flavor, but it is decidedly pleasant, and we should say that it does compare very favorably with clover honey. We have offered friend Harris, for a barrel of it, the same as we would give for the best quality of clover. We are very glad indeed to know that there is a Southern honey which can rival the Northern clover, so justly praised.

DISCOURAGING INDEED.

We take the following from the Saginaw *Courier* of May 6. As it is very discouraging indeed, we thought best to reproduce it. We are glad to know that our friend John Rey is not discouraged. Many of our best bee-keepers have been obliged to pass through, some time in their career, a similar experience:

> The weather this spring has been unusually severe on bees all over this section of the State. John Rey, the well-known apiarist of this city, was very unfortunate, losing 116 swarms, worth about $700. Mr. Rey, from a small beginning a few years ago, has become one of the most extensive bee-cultivators in this part of the State; but his heavy loss has not discouraged him, and he proposes to make purchases to replenish the losses.

DANGEROUSLY STUNG BY BEES.

The following item from the *N. Y. Weekly Post* has been passing the rounds of the press for the past two or three weeks:

> Xenia, O., May 23.—George Hamill, a young farmer residing two miles north of this city, was attempting to hive a swarm of bees yesterday when they settled on his head, face, and neck. He began to fight them, and they began to sting. In a short time he was on the ground writhing in terrible agony; and when his wife and mother came to his aid with brooms, he was nearly dead. He became unconscious, and remained so for some time, his head and hands swelling up so as to make him unrecognizable. He is in a serious condition.

We do not know how much the above report has been exaggerated. In any case, it was very unwise in the young farmer to strike at and fight the bees as he is reported to have done. If they started to cluster on his person he should first attempt to jar them off gently, and then walk quietly away for the time being until they found some other object on which to cluster. A few puffs from a bee-smoker would also have removed them. We thought best to insert the item, to warn our friends against striking bees, or fighting them when there are so many in the air that they can do a great deal of mischief. We presume the young farmer recovered, as we have seen nothing in print to the effect that he did not.

WILLIAM HOGE.

After our inquiry on page 427, one of our subscribers forwarded us a letter-head, which reads as follows:

Hoge's Hoarhound Honey. A Cough Cure.
Fig Honey, the Prince of Pleasant Purgatives.
EASTERN AGENCY,
264 Willoughby Ave., Brooklyn, N. Y.

Above the printed matter is a picture of boxes and barrels, and jars of honey. At one side, in small type, are the words, "Apiaries, Ventura, Cal." Will somebody in the vicinity of Ventura tell us if they know of any such apiaries? See page 426. Mr. Hoge sent to our informant for a boxful of dead bees, by mail. Perhaps the dead bees were to be crumbled up and sprinkled in the hoarhound honey, to convince customers who might be incredulous, that it actually came out of bee-hives. When C. O. Perrine did such a large honey business in Cincinnati years ago, he just sprinkled on the surface of his manufactured honey, fragments of dead bees and crumbled-up dry honey-comb, to make it resemble the kind our forefathers used to bring in from the country years ago. Now, I do not want to be uncharitable; but if there are any such frauds going on in our line, or in any other connected with the honey business, we want to ferret it out and let daylight shine in upon it. If Mr. Hoge is doing an honest business, we will give him every chance in the world to advertise it.

WHAT TO DO.

The St. Louis *Journal of Agriculture* gives us a very pleasant notice of our new book of the above title; but they criticise the book a little because it does not tell people what to do unless they have a little bit of ground to work on or with. To which I reply, in the first place, that I do think every human being ought to have access to at least a little patch of old Mother Earth. Everybody is supposed to have a home; and where that home is, whether it is a boarding-place or even a hotel, there is ground adjoining somewhere. If I lived in a large city where there was not any ground, I believe I would have a garden on the roof of the house, as the orientals do; and I think one could keep busy and make money with such a garden. In the second place, if our friends of the *Journal of Agriculture* will read the book more thoroughly they will find there is a multitude of instructions for those who hire out in our work-shops and factories. I tried to make my instructions so full and complete that the one who is working out by the day will not only get a permanent place, but better wages; and, best of all, be able, by and by, to get a little piece of ground, and work for himself.

SURPLUS OF GOOD MATTER FOR PUBLICATION.

It is getting to be now a real problem as to what matter we shall use in Gleanings, as there is such a very large amount to select from. We try to carry out the rule of the survival of the fittest; but for various reasons it is impossible to do so in all cases. Some good articles are held over to await their turn; and when their turn comes, the subject they discuss is old. We do not know what can be done, unless we have shorter communications. In asking questions, put them as briefly as possible. Questions ordinarily ought to be stated in one or two sentences. We have just been looking through the drawer containing copy for the department of Reports Encouraging, and there is such a raft of it that we do not know how we can possibly give place to it, unless we cut the letters down to four or five lines apiece, and it is too bad to mutilate to that extent; we would therefore request those who send in Reports Encouraging, and expect to see them inserted, to reduce them down to about 100 words. If the report contains something of more than usual interest, such as a large yield, use more space. We hope our friends will try to bear in mind that our subscription-list is very much larger than it has ever been before. There is consequently such a large family, and so many to report encouraging and discouraging things, that the necessity of being brief is greater than ever. The value of this department depends more upon a *large* number of brief reports from all over the country than upon a few occupying the same space long drawn out, detailing that on Sunday it rained, on Tuesday it was cool, or that colony No. 1 has a queen-cell, colony No. 5 swarmed on the 28th, etc. You must discriminate between important and unimportant details, if you expect to see your report in print.

EXPENSIVE HANDWRITING.

By the N. Y. *Tribune* of June 14 we learn that a suit has been pending in the courts, over the proper deciphering of one little word written with a pen. A certain individual deeded either two thousand or ten thousand dollars to a charitable institution. The numeral preceding the word thousand, it is stated, could be read just as easily *two* as *ten*. Certain experts were called in to settle the matter, and they decided that the numeral meant *ten* instead of two. This is only one of a great many incidents where a little piece of poor penmanship costs thousands of dollars. There, now, don't you see the point? A type-writer would have saved all this expensive litigation (see Special Notices). It would also have saved a vast amount of money and trouble. The same thing is occurring almost every day. Yesterday we had to omit a portion of an advertisement sent in, because it was impossible to decipher the writing.

THE "GRAND RAPIDS" LETTUCE — A GOOD FAULT.

At the present writing we have not been able to get a single stalk of the above lettuce to run up to seed. The following is in the same line:

> I am trying to raise some seed of "Grand Rapids" lettuce, but I am not succeeding very well. I hope you will be able to furnish us seed by the pound in the fall. You will please send price, as we make a specialty of this. L. H. Mahan.
>
> Terre Haute, Ind., June 13, 1888.

Now, then, there is going to be a pretty big demand for this seed just as soon as somebody can furnish it. If any among our readers are ready to supply the demand, they will please state what they have and what they will take for it. The fact that it is very slow about running to seed is, of course, greatly in its favor.

THAT BEE-STING REMEDY.

DR. MASON GETS UP AND EXPLAINS.

SEE here, friend Root, I don't care a snap what you *think* about oil of cloves as a bee-sting remedy that I tell about on page 295. I "*will* talk back, in a hurry" too, and you can't help yourself either. I don't *need* to forgive you for your unbelief. It is no new thing for people not to believe the truth, and this is not the first time you have been in such a fix, and I'm not a bit sorry I gave the remedy for bee-stings. I know that you have often said that bee-stings generally get well anyhow, and the majority of them about as soon as they do when you apply the remedy. Bah! So does smallpox "generally get well anyhow;" and if you have been vaccinated, I don't believe you are to blame for it.

To make the previous article as brief as possible, I did not explain how I came to use and recommend it; but I'm not going to mind the length of this, but will tell what I have seen, and *know* about it and you can chuck it in the waste-basket if you want to, "so there, now."

When Mrs. M. and myself (she went along to keep me straight) were in New York last summer we spent a few days near Buffalo with one of my big brothers. He had a few colonies of bees, and those bees were the only things I ever knew that would cause him to run to get out of the way. It was not the dread of the pain from the stings, but the severe and protracted swelling that followed. He thought it was a good opportunity to get his bees "overhauled," and, not having seen any bees for a few days, I was anxious to "rastle" with them. They were perfect Tartars, and pricked me in a lively manner; but I never let on; no, sir'ee; couldn't show the white feather when admiring relatives and their neighbors were looking on at a distance. My brother would never go near them without being well protected with gloves, a veil, and a smoker; but I had neither; and he, thinking that I was not being stung, and the bees were on their good behavior, kept getting closer and closer, till he got stung just below one of his eyes. Being near where he kept a bottle of oil of cinnamon to be used for stings, I applied some at once, and but very slight swelling followed. This was repeated several times during our stay, and with the same result. But the morning of the day we left he was stung on the cheek; and the oil having been misplaced it was about half a minute before it was applied, and he said it would swell badly. Before noon it was so badly swollen that the eye on that side was shut. To prevent swelling he said that the oil must be applied almost instantly. Since then we have used oil of cloves because we had no oil of cinnamon, and we have found it to work well, but it might be of no use to some. Now, you may pooh all you have a mind to; but "the proof of the pudding is in the eating."

MORE ABOUT WIRED FRAMES ON THE GIVEN PRESS.

On page 296 you ask me to tell if I am talking about a full-sized L. frame when giving the Given press such praise. Yes. The L. frame is the only kind of frame I have used for fourteen years, except a few of the Heddon shallow reversible, and some of Armstrong's reversible, and I have found no trouble in making it work nicely. If the next meeting of the N. A. B. K. A. were to be held in Toledo I would show you just how. I never saw nicer combs than were made last summer from foundation my boys made when I was away visiting. We have made over thirty sheets at a time in wired frames without lubricating the dies, except to start with. I believe we could make a hundred without putting in wired frames, and not be troubled with the wax sticking. We use the washing-fluid referred to, as a lubricator.

SOMETHING IN FAVOR OF PUTTING BEES IN THE CELLAR EARLY.

Now about those bees put in the cellar Oct. 19th. I had often wondered if bees would not be better off in winter quarters as soon as frost had killed the flowers; for certainly their exercising only tends to shorten their lives, and I came to the conclusion that I would try the experiment. Mrs. Mason (she is my better half, you know) had been doing the same kind of thinking I had, but she said nothing about it till she saw me putting them in the cellar; so I got the start of her for *once* in my life, anyhow. Some of the colonies had natural stores, and some one-fourth to one-third sugar syrup in addition to the natural stores. In the *Canadian Bee Journal* for Oct. 26 and Nov. 9, 1887, the editor spoke of setting bees in early; and on page 693 for Nov. 16 is an article by me on the subject, dated Nov. 1, in which I say, "The bees seem to be clustered at the front end of the hive and down to the bottom-board at the entrance, and look really comfortable and cosy . . . . Breeding . . . . ceased long ago; and if old bees don't winter well, I shall lose heavily. There is so little pollen in the combs that I have no fear of diarrhea."

It is now just 4 o'clock P. M., April 19, and I have just come from the cellar, where I have been to examine and weigh those colonies, so as to be able to tell you about them. (Since commencing to write the above sentence it comes to my mind that it was 4 o'clock P. M., Oct. 19, when those colonies were put in the cellar, just six months ago to the hour.) I find, on weighing them, that they have lost, on an average, just 7¼ pounds, some being on five and some on six frames, and kept there by a division-board. The bottom-boards are tight, with the entrance open full width, and the same quilts on that were used last summer, and glued down so tight that it disturbed the bees a good deal in loosening them, to see how they look inside. They have been breeding for some time, and will soon require more room. They are all clean and quiet, and in splendid shape, with the thermometer at 46°. Eighteen colonies were uneasy, and somewhat diseased in March, and were set out for a fly; but none of those set in early have shown any signs of disease or uneasiness. The bees have consumed more stores than usual the past winter, owing to a lower temperature in the cellar, the thermometer, for several days at a time, being down to 36°, and occasionally to 34°. My bees are all in the cellar yet.

Auburndale, O. DR. A. B. MASON.

Well, doctor, you talk first rate, and it sounds like yourself exactly; but I am afraid I smiled out loud when my eyes caught that part of your argument where you say you discovered that oil of cloves was just as good, or better, because there was no oil of cinnamon anywhere around. Now, then, are you prepared to show that some other oil would not be better still? It is really funny what wonderful virtues there are in almost any thing you get out of a bottle. Now, I believe that if, by mistake, you had got hold of a bottle that contained water only, it might have given immediate relief. Had you stopped at the point where that good brother of yours received a number of stings, and not one of them swelled so long as he applied the oil of cinnamon until the bottle was lost, and then swelled badly, you would have made a big point; that is, the appearances so far were very strongly in favor of the remedy; and I really believe I should have procured some oil of cinnamon to test the matter. But since, as you say, you have got past the oil of cinnamon, and use yourself oil of cloves, I can not help beginning to lose faith, just as I have in so many other remedies for bee-stings

This matter, however, of making full-sized sheets for an L. frame right on wires, 30 at a time, without any lubricating, is a different affair altogether. We certainly shall take the trouble, some of us, to go and see the machine, if for nothing further. Your head is also clear and bright in this matter of putting the bees in early. Where bees are wintered in the cellar, I think I should entirely agree with you, as I may also in time agree with you in regard to curing bee-stings by something kept in a "*bottle*."

SPECIAL NOTICES.

ORDERS SHIPPED BY THE FIRST TRAIN.

With very few exceptions our goods have been sent off promptly, both by freight and by express. We are now in most cases enabled to send out goods by the first train. In view of the experience we had last year, we made up a large stock at the beginning of the season, and so were ready for the orders as fast as they came.

BEE-VEILS ADVANCED.

We are compelled to advance the price of bee-veils again, owing to the higher cost of material. Advanced prices will take effect June 15, and will be as follows:

Best veil, grenadine, with silk Brussels net face, 80 cts. each; $6.00 for 10.

All grenadine veil, 65 cts. each; $4.75 for 10.

Mosquito-bar veil, with Brussels net face, 40 cts. each; $3.00 for 10.

All mosquito-bar veil, 25 cts. each; $2.00 for 10.

A bee-hat will be added to any of the above for 20 cts. extra, postpaid.

BEES AND QUEENS FROM OUR OWN APIARY.

We have the finest lot of bees and queens on hand now that we ever owned, and the hives are just boiling over with them, and the bees are swarming every day. Of course, the obstacle in the way of sending them out is foul brood; but at the present date, June 14, only one case so far has shown itself, and even in that, only a single cell was unmistakably foul brood. We considered this, however, sufficient to condemn it, and the combs were accordingly cremated at once, and the bees treated according to the directions in the A B C book. Now, we do not propose to ship bees and queens from our own apiary at all this season, unless the one who orders them has seen this notice, and is willing to take the risk. The queens are beautiful, and such bees!—finer than we ever had before, because there have been no shipments made. Those who have foul brood already in their own apiaries, of course would incur no risk in ordering from *our own apiary*. I write this, because one customer, in making his order, said he would just as soon have them from our own apiary as not, as he had foul brood already.

A. E. MANUM'S SWARMING-DEVICE.

On page 469 of this issue is described the swarming-device as above. The ones we have constructed can be folded compactly into a long pole. Its weight is only nine pounds. The length of the long pole is ten feet. The length of the two legs is five feet. It is so made that it will support a cluster any distance from the ground, between two and ten feet, independently of any assistance from the apiarist. With the added height of a man it will reach a cluster 16 feet from the ground. Instead of using the arrangement as friend M. describes, we have made use of the corn-popper. This is large enough to hold a pound of bees, besides a clipped queen. We can furnish the whole arrangement by express or freight for only 75 cts. each; 10 for $6.00. Since our report on page 469, we have had a chance to test them, and we find they work just as friend Manum says they will. In large apiaries, where there is frequent swarming, we believe there is nothing better. Indeed, they can be used to very good advantage when the queen's wings are not clipped, as we have proven. These swarming-devices, when sent singly, can always be sent cheaper by express. The charges will not be very great.

ANOTHER STEP IN FACILITATING THE RAPID INTERCHANGE OF THOUGHT.

After food and clothing, one of the great needs of humanity is some means of making our wants and wishes understood to our fellow-men. The invention of language—if language ever was invented—was a big step. Putting language into writing, so it could be read after it was cold (to use a familiar expression) was another big step in advance. Then the art of printing, so that one letter can be sent to a great many different people, was a wonderful stride. Whenever it becomes necessary for one person to say the same thing over and over to different individuals, he avails himself of a printing-press. As the world of thought progresses, however, and as a multitude of new inventions and discoveries springs up, the need becomes very great indeed of some method of answering a great number of people, on many different subjects, faster than we can write with a pen. For years I have enjoyed the pleasure (and I tell you it is a pleasure) of being able to talk to any single individual, or any large class of individuals, simply by dictating to a stenographer, who takes all the responsibility of not only taking down my words, but sending them just where I dictate. Of late we have been using type-writers with much satisfaction—so much so that, for several months, I have been wondering if it were not possible to get almost every thing necessary to read, in plain clear type-writer print. I want to read all our clerks write; but it is now quite a task, especially when the clerks are so crowded with business they are obliged to write rapidly. And now the dawn of a new era bursts upon us in the shape of a little type-writer that costs only $8.00. Why, bless your heart, the little chicks that go to school can have a type-writer as well as a Waterbury watch; and the type-writer all complete is not very much larger nor heavier than the slates they have been wont to carry. With these type-writers they can do all their work by means of plainly printed letters; and when they write to Uncle Amos he can read their letters at arm's length a good deal easier and a good deal faster than he reads the print on these pages. We have just decided that every clerk in our establishment shall have one, and hereafter there will be no more jangles and disputes in regard to whether a letter or word was plainly written or not—that is, after everybody gets a type-writer. We can not give a picture of it in this issue, but hope to in our next; and I expect, when Huber commences to go to school next April, that, instead of letters and figures made with slate and pencil, even his juvenile work will be mostly done with the type-writer. Who can imagine the effect of permitting even a child to write as plainly and clearly as the most skillful penman—yes, and a great deal plainer and clearer than any penman *ever* wrote?

We can furnish the machine on receipt of the price mentioned. The manufacturers claim to have sold already 20,000 within the last six months. They do not permit us to make any better terms on the price of a single machine. Of course, these cheap machines do not equal in speed those costing toward $100; but they are much more rapid than the pen, and most people will write faster with them than they can write otherwise, after only a few hours' practice, without the attendant fatigue of pen-writing.

KIND WORDS FROM OUR CUSTOMERS.

PLEASED WITH THE WHEELBARROW.

The goods were received some time ago, and I am particularly pleased with the wheelbarrow.

Marshallville, O. C. WECKESSER.

I received the smoker and sections last night, and am satisfied that I got more than you led me to expect by your circulars. L. J. STAGE.

Warwick, N. Y., June 8, 1888.

Your letter and my bill of goods received last Saturday. The goods came in fine order. I am well pleased with them. I consider you very prompt in business. E. W. PETTYS.

Windsor, Broome Co., N. Y.

"FILLS A LONG-FELT WANT."

Our friend A. F. Bright, remarking upon the new department in GLEANINGS, says:—

> May 15th GLEANINGS is at hand. "Honey Statistics" is just the thing, and fills a want long felt. Go on with them.
>
> Mazeppa, Minn., May 21, 1888. A. F. BRIGHT.

THE LAWN-MOWER A GOOD INVESTMENT.

The machine has arrived in good condition. Please accept my thanks for the interest you took in looking after the goods. I have mown nearly half our lawn already. The mower works like a charm. I am well pleased with the investment.

W. R. WEATHERWAX.

Spring Mt., O., June 13, 1888,

THE YOUNG AMERICA LAWN-MOWER.

Dear Sir:—The lawn-mower arrived on Saturday eve, and we tested it thoroughly yesterday. It does the work in an excellent manner.

Butler, Pa., June 5, 1888. A. G. WILLIAMS.

GLEANINGS comes to hand bright and clean, always on time, and makes me happy. I love the Home Papers. I would rather do without all my other secular journals than GLEANINGS. May the Lord bless you! W. H. LAWS.

Lavaca, Sebastian Co., Ark.

GLEANINGS has been a great source of encouragement to me in many ways; and your practical talks can not help doing great good to all who read them; and God help you in your crusade against tobacco and rum, and in helping to save souls from sin and sorrow. I wish there were thousands more like you in this good work. MRS. H. J. SKINNER.

Harrison, Sioux Co., Neb.

THOSE HOME TALKS.

If you only knew how much good you are doing me by the Home talks you would rejoice. It is just what I need to help me walk uprightly before God. Oh, if all the young Christians could have the Home talks to help them along! I wish GLEANINGS were a weekly, for it does me so much good. May God spare you, and bless you for the good you are doing.

Angus, Neb. DANIEL MINER.

A KIND WORD FOR OUR STENOGRAPHER.

Dear Sir:—Several things in May 15th GLEANINGS please me very much. Your stenographer, in replying to Mr. Lighty, shows an admirable "art of putting things," and has good things to put. He should be heard from oftener. Your own reply was also good. I was especially interested in your statement of the business record of ministers. It corresponds with a fact which I learned when a compositor many years ago, that paper-dealers are more willing to trust the publishers of religious newspapers than others. DAVID STRANG.

Lincoln, Tenn., May 23, 1888.

FOUND AT LAST!

A preservative that will keep eggs perfectly fresh the year round. It costs a little over a cent a dozen to preserve them. For particulars, address 12tfdb

DR. A. B. MASON, Auburndale, O.

☞In responding to this advertisement mention GLEANINGS.

FREE! FREE! FREE!

Upon application. Our 28th Annual Price List. A full line of

BEE-KEEPERS' SUPPLIES.

CHOICE COMB FOUNDATION AND WHITE-POPLAR SECTIONS A SPECIALTY.

100 COLONIES OF CHOICE ITALIAN BEES

for sale cheap. Also NUCLEUS COLONIES and QUEENS. Orders booked now. Address

WM. W. CARY & CO.,
3tfdb Colerain, Franklin Co., Mass.
Successors to WM. W. CARY. (Please mention GLEANINGS.)

COGGESHALL'S HILLSIDE APIARY.

Italian Queens and Bees by the pound, Nuclei or Full Colonies. Send for circular.
W. B. COGGESHALL,
Box 84. Summit, Union Co., N. J.

NON-SWARMING QUEENS.

If you want No. 1 box workers, don't fail to send for my circular. W. C. GILLETT,
9-16db Le Roy, N. Y.

DADANT'S FOUNDATION FACTORY, WHOLESALE AND RETAIL. See advertisement in another column

That Pittsfield Smith

Offers the Following Real Bargains for this Month:

BLACK BEE-VEILS, ALL GRENADINE, WITH ELASTIC TOP AND BOTTOM, 40 CENTS EACH, POSTPAID!

HARVEY W. PEACE COMBINATION SAWS, WITH 24-INCH SQUARE, RULE, AND STRAIGHT-EDGE, ONLY 55 CENTS EACH. IF BY MAIL, 40 CENTS EXTRA.

Also one of the Largest PRICE LISTS of the Season Mailed Free.

Address Plainly **CHAS. H. SMITH, Pittsfield, Mass., Box 1087.**

☞In responding to this advertisement mention GLEANINGS.

500 Lbs. Italian Bees

READY TO SHIP ON SHORT NOTICE.

1 lb., $1.25; 2 lbs., $2.00; 5 lbs., $4.00; 10 lbs., put up in two packages, $7.50.

Tested Italian queen, one year old, $2.25; two years old, $2.00. A few hybrid or mismated queens, 50 cts. each. Full colonies with tested queen, $6.00, in 8-frame L. hive. Large discounts on full colonies in lots of 10 to 50. Above ready to ship now. 200 colonies to draw from. Untested queens, after June 10, $1.00 each by mail, when not ordered with bees. 5-lb. pkgs. of bees will contain 1 Gallup comb, with brood. I guarantee all bees to reach you in good condition, and to give perfect satisfaction.

Postoffice and American Express money orders, on Kalamazoo, Mich. Also Draft on New York or Chicago, at my risk. References furnished if called for. Address **O. H. TOWNSEND,**
11-12d **Alamo, Kalamazoo Co., Mich.**

☞In responding to this advertisement mention GLEANINGS.

TESTED ITALIAN QUEENS, $1.00 each; untested, 75c each; three for $2.00. Daughters from one of D. A. Pike's Albino queens, same price. Three-frame nucleus, with tested queen, $3.00. Bees per pound, 75c. **I. R. GOOD,**
11tfdb **Nappanee, Ind.**

ITALIAN BEES AND QUEENS. Two-frame nucleus, untested queen, in June, $2.25; after, $2.00; 3-frame, in June, $3.00; after, $2.50. Untested queens, after June 1, 75 cts. each; six for $4.00. Circular of Supplies free. 12-14d
JOHN NEBEL & SON, High Hill, Mo.

Samples of the American Apiculturist

sent free. Also our price list of the best strain of pure Italian queens. Address 9tfdb
APICULTURIST, Wenham, Essex Co., Mass.

DADANT'S FOUNDATION FACTORY, WHOLESALE AND RETAIL. See advertisement in another column. 3btfd

SECOND-HAND.

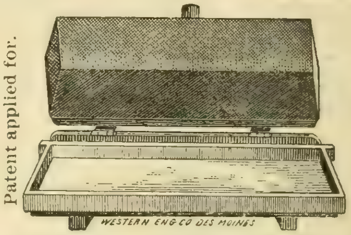
We have on hand a quantity of 60-pound tin cans with screw top, cased, 2 in a case of wood, which we will sell at 50 cts. per case. They are the same as A. I. Root sells at 90 cts. per case, excepting having been once used. F. D. WOOLVER,
9tfdb Munnsville, Madison Co., N. Y.

I WILL SELL OUT CHEAP!

my entire apiary of over **100 COLONIES,** all strong, and in No. 1 chaff hives, Langstroth frame.

A BARGAIN FOR SOME ONE.

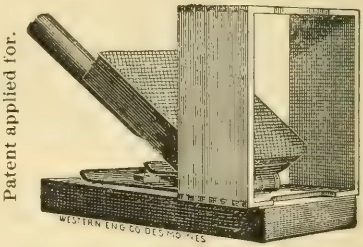
Inquire at once. **E. W. COTTRELL,**
10-11-12d **No. 4 Merrill Block, Detroit, Mich.**


Patent applied for.
WESTERN ENG CO DES MOINES

Bittenbender's Foundation Fastener

For Flat Top-Bar Brood-Frames.

Price $1.50


Patent applied for.
WESTERN ENG CO DES MOINES

Bittenbender's Foundation Fastener for Sections

Price 75 cents; by mail, $1.00.

Send for illustrated price list and see advantages. Price list free on application.
J. W. Bittenbender, Knoxville, Iowa.

☞In responding to this advertisement mention GLEANINGS.

CHENANGO VALLEY APIARY.

HEADQUARTERS IN N. Y. STATE

For superior yellow ITALIAN QUEENS. In order to introduce my strain of bees, I offer one-frame nuclei, with untested queen, for $1.50 each, Langstroth frame; untested queen, $1.00; select tested, $2.00. Reference if desired. Send stamp for reply, to A. I. Root, or National Bank of Sherburne. Send for free circular. MRS. OLIVER COLE,
6tfdb Sherburne, Chenango Co., N. Y.

☞In responding to this advertisement mention GLEANINGS.

BEES, Queens, Hives, Given Comb Foundation, Apiarian Supplies, German Carp, Small-fruit Plants. Send for catalogue free. **E. T. Flanagan,** Belleville, Ills. 1-24db.

ITALIAN QUEENS.

Untested, 75 cts.; tested, $1.25. Untested, per dozen, $8.00. **I. GOOD,**
10tfdb **Sparta, White Co., Tenn.**

☞In responding to this advertisement mention GLEANINGS.

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PRICE LISTS RECEIVED.

The following parties have sent us their price lists since our last mention:

G. H. Kirkpatrick, New Paris, O., sends a list of bee-supplies, Italian queens, etc.; 12 pages.

J. Vandeusen & Sons, Sprout Brook, N. Y., send us a circular pertaining to their make of foundation; 4 pages.

P. D. Miller, Grapeville, Pa., sends us a circular relative to Italian bees and poultry; 8 pages.

A. D. D. Wood, Rives Junction, Mich., sends us a circular of queens, poultry, rabbits, carp, etc.; 6 pages.

J. M. Hyne, Stewartsville, Ind., sends a list of bees and apiarian supplies; 1 page.

S. Valentine & Sons, Hagerstown, Md., send out a catalogue of albino and Italian queens, and apiarian supplies; 32 pages.

J. B. Hains, Bedford, Ohio, sends out a catalogue of queens, bees, and supplies; 8 pages.

Oliver Hoover & Co., Snydertown, Pa., send us a very nicely printed list of queens, bees, and supplies; 32 pages.

Rawson & Culver, Quincy, Mich., send us their circular relative to the Wolverine chaff hive.

G. Neighbour & Sons, London, Eng., mail us a copy of their large and elegant catalogue of apiarian implements; copiously illustrated; 64 pages.

J. P. Moore

would say to his friends and patrons that he has reduced prices as follows: Warranted Italian queens, 80 cts. each; 3 for $2.25; 6 for $4.50. *Now is your time to buy.* See ad. in GLEANINGS for May 15th. Safe arrival and satisfaction guaranteed. Circular free. Address J. P. MOORE,
13d Morgan, Pendleton Co., Ky.

☞In responding to this advertisement mention GLEANINGS.

Black and Hybrid Queens For Sale.

For the benefit of friends who have black or hybrid queens which they want to dispose of, we will insert notices free of charge, as below. We do this because there is hardly value enough to these queens to pay for buying them up and keeping them in stock; and yet it is oftentimes quite an accommodation to those who can not afford higher-priced ones.

A few hybrid queens for sale at 40 cts. each by mail, ready now. O. H. TOWNSEND,
Alamo, Kal. Co., Mich.

Italian hybrid queens now ready to mail at only 30 cts. each. Stamps taken.
N. A. KNAPP, Rochester, Lorain Co., O.

I have several hybrid queens which I will sell at 50 c. each, safe arrival guaranteed, and will refund the money to all who are not satisfied and return the queen. S. B. POST, England, Pa.

FOR SALE.—30 hybrid queens, reared last year (good layers), 50c each. WM. BUESCHING,
Paw Paw, Mo.

O. R. Coe, Windham, Greene Co., N. Y., will pay 25 cts. for hybrid queens. 12-13-14d

Wants or Exchange Department.

Notices will be inserted under this head at one-half our usual rates. All ad's intended for this department must not exceed 5 lines, and you must SAY you want your ad. in this department, or we will not be responsible for any error. You can have the notice as many lines as you please; but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale can not be inserted under this head. For such our regular rates of 20 cts. a line will be charged, and they will be put with the regular advertisements.

WANTED.—To exchange 250 colonies of bees, for horses, mules, wagons, buggies, and 4 h. p. engine, or any thing useful on a plantation.
21tfd ANTHONY OPP, Helena, Phillips Co., Ark.

WANTED.—I will exchange supplies *now* for new crop of honey as soon as gathered. Write at once. CHAS. H. SMITH, Box 1087, Pittsfield, Mass.
12-13d

WANTED.—To exchange Wyandotte and Plymouth Rock fowls, also turnip seed, for Houdan fowls, a cheap type-writer, or offers. 13d
H. A. HUBBARD, New Lisbon, Ots. Co., N. Y.

WANTED.—Italian bees and supplies, in exchange for honey, gold watch, new, choice nursery stock, other property, or advertising. 13d
J. B. ALEXANDER, Nurseryman, Hartford City, Ind.

WANTED.—To exchange 3-frame nuclei, 2 lbs. bees with tested queen, for one of A. I. Root's $5.00 saw-mandrels, belting, letter heads, and envelopes, or any thing useful. Address 13d
JNO. W. MARTIN, Greenwood Depot, Alb. Co., Va.

WANTED.—To exchange, several U. S. Standard honey-extractors, L. and other sized frames, *new*, have never been uncrated; also several thousand fine white basswood sections, odd sizes principally, 6¼×5¼×1½ inch, and 4×5×2 inches, closed top and bottom, which I will exchange on favorable terms for comb or extracted honey. First come first served. E. T. FLANAGAN,
13d Box 995, Belleville, Ill.

WANTED.—To exchanged a thorough bred pointer dog, a large honey-extractor, and twelve American hives, for Italian bees or queens.
J. FERRIS PATTON, 163d St. & Morris Ave.,
New York City.

WANTED.—To exchange, trio of pure-bred Pekin Ducks (stock of Wm. Henry Maule), for honey-extractor or opera or field glass, or books on bee culture. LOUIS STEPHENS,
13d Fayette City, Pa.

WANTED.—To exchange choice Italian queens for comb or extracted honey. Correspondence solicited. JAMES F. WOOD,
13tfdb North Prescott, Mass.

WANTED.—To exchange good hybrid bees and queens for a good good foundation-mill. 13d
JOSIAH F. MCCORD, Covington, Newton Co., Ga.

WANTED.—A good lawn-mower in exchange for Italian bees. O. H. TOWNSEND,
Alamo, Kal. Co., Mich.

WANTED.—To exchange Italian bees in Simplicity hives, for cottage organ, B. L. shot-gun, dry goods, or offers. W. B. COGGESHALL,
9-10-11-12d Box 84. Summit, Union Co., N. J.

FOR SALE. A fine lot of good hybrids. One pound and queen, $1.25; without queen, 65 cts.; ½ pound and queen, $1.00; without queen, 50 cts. Send by postoffice order to JOSIAH F. MCCORD,
13d Covington, Newton Co., Ga.

UNTESTED ITALIAN QUEENS, bred from best imported and home-bred stock, 75c each, or three for $2.00. Tested, $1.25 each.
F. S. McCLELLAND, New Brighton, Pa.

HONEY COLUMN.

CITY MARKETS.

KANSAS CITY.—*Honey.*—We have no change to note in our honey market since our last quotations. No new honey in market yet. Last year's crop about closed out. We have some samples of California extracted honey which is very nice, whiter than last year's crop.

CLEMONS, CLOON & Co.,
June 22. Kansas City, Mo.

CINCINNATI.—*Honey.*—Demand is good for extracted honey, which brings 5@8c on arrival. Comb honey is in very slow demand, and prices are nominal. It sells at 12@14 cents in the jobbing way. *Beeswax.*—The demand is good; it brings 20@22 for good to choice yellow on arrival.

CHAS. F. MUTH & SON,
June 23. Cincinnati, Ohio.

DETROIT. — *Honey.* — Best white comb honey in pound sections 14c, with few sales. Extracted is selling in a small way at 9 cents. *Beeswax*, from 23@24.

Bell Branch, Mich., June 22. M. H. HUNT.

CHICAGO.—*Honey.*—Not any of the new crop as yet on sale, now would it sell were it here. End of July and August is early enough.

R. A. BURNETT,
June 21. 161 So. Water St., Chicago, Ill.

ST. LOUIS.—*Honey.*—We quote strained and extracted in barrels, 5@6. Cans, 7½@8½. Choice white clover, comb, prime order, 13¼@15.
Beeswax, 22, for prime.

D. G. TUTT GROCER CO.,
June 22. 206 N. Commercial St., St. Louis, Mo.

ALBANY.—*Honey.*—Market quiet; very little doing. Stock light and in good shape for new crop when ready. Consignments solicited.

H. R. WRIGHT,
June 22. Albany, N. Y.

CLEVELAND.—*Honey.*—Market dormant. Almost all old honey sold out, and no new being offered. We think the market will be in good condition for new honey.

A. C. KENDEL,
June 21. Cleveland, O.

BOSTON.—*Honey.*—No change in prices. Sales very low.

BLAKE & RIPLEY,
June 22. 57 Chatham St., Boston, Mass.

I would say to the readers of GLEANINGS, that we are extracting a very fine article of white-clover honey, which we will sell in tin cans, 70 lbs., 7 cents per lb.; can, 60 cents. J. B. MURRAY,
Ada, Hardin Co., Ohio.

QUEENS FOR SALE. Italian queens, tested, $1.00 each; untested, 75 cts.; mismated, 50 cts.
13-14d L. A. RESSLER, Nappanee, Elkhart Co., Ind.

DADANT'S FOUNDATION FACTORY, WHOLESALE AND RETAIL. See advertisement in another column. 3btfd

Bee-Keepers, Look Here !

To introduce my sections I will sell No. 1 white basswood V-groove 1-piece at $3.00 per M. No. 2, $2.00 per M. Price list free. **J. M. KINZIE,**
12tfdb **Rochester, Oakland Co., Mich.**
☞In responding to this advertisement mention GLEANINGS.

UNTESTED QUEENS, of Heddon's improved strain, 75 cts each; two chaff hive frame nucleus with untested queen, $2.00. H. L. FISHER,
12-13-14d Milford, Kosciusko Co., Ind.

I HAVE 20 strong healthy colonies of blacks and hybrids in 8-frame L. hives, which must be disposed of. How much am I offered per colony, or what have you to exchange for them, either useful or ornamental? CHARLES T. COUTANT,
Box 11. Saint Remy, Ulster Co., N. Y.
☞In responding to this advertisement mention GLEANINGS.

A RARE CHANCE IN CALIFORNIA.

FOR SALE.—My apiary, and fixtures for producing comb honey. A bee-range unexcelled in California. Nine acres of raisin grapes, $1000 worth of grapes now on the vines. A rare chance for a man of some means to get hold of 320 acres of government land. Address

J. P. ISRAEL,
Olivenhain, San Diego Co., Cal.
☞In responding to this advertisement mention GLEANINGS.

2-STORY L. Hive, 80c

We still have a few of those 2-story L. hives with 10 brood-frames, for 80c each, in crates of 5 or more. Who will have them? Speak before it is too late.
SMITH & SMITH, 6tfdb **KENTON, OHIO.**
☞In responding to this advertisement mention GLEANINGS.

PURE **ITALIAN BEES AND POLAND CHINA PIGS FOR SALE.** Write for free price list giving full description and particulars. **N. A. KNAPP,**
13-14d **Rochester, Lorain Co., O.**

J. F. Wood IS NOW PREPARED TO send promptly those beautiful Italian queens (every one warranted) that have given such universal satisfaction the past three years, at the low price of 75 cts. each; $4.25 for 6; $8.00 for 12. Ninety-eight per cent of all queens sold last season proved purely mated. J. F. WOOD,
13tfdb *Mention Gleanings.* North Prescott, Mass.

ITALIAN QUEENS 5 FOR $3.00. 4-BANDED, $1.50 EACH. **ITALIAN QUEENS**

20-PAGE CATALOGUE FREE.
SAMPLE OF 4-BANDED WORKERS, 2 Cts.
C. M. GOODSPEED, BOX 31, THORN HILL, ONON. CO., N. Y.
Mention Gleanings. 2-48d

300 ITALIAN QUEENS, GOOD AS THE BEST, AT 50 CENTS EACH.
Money Orders on New Iberia, La.
J. W. K. SHAW & CO.,
13d Mention GLEANINGS. **Loreauville, La.**

DADANT'S FOUNDATION FACTORY, WHOLESALE and RETAIL. See advertisement in another column. 3tfbd

HONEY-PLANTS. The Chapman honey-plant, 50 cts. per dozen by mail; 35 cts. by express. The Spider plant, 25c per dozen, by mail or express. Fine strawberry-plants, newest and best varieties, ready after Aug. 1. H. A. HUBBARD, New Lisbon, N. Y.

CHEAP.

Two and three frame nuclei cheap, pure Italians, on wired L. frames.
M. H. HUNT, Bell Branch, Mich.

THE REDDEST DRONES

AND BRIGHTEST FOUR-BANDED GOLDEN ITALIAN QUEENS.

For gentleness and working qualities, second to none. Price, untested, $1.00; tested, $2.00; best select tested, $3.00. After July 15th, one-fourth less.
13-14d *L. L. HEARN, Frenchville, W. Va.*
☞In responding to this advertisement mention GLEANINGS.

GLEANINGS
IN
BEE CULTURE.
DEVOTED·TO·BEES·HONEY·&·HOME·INTERESTS.
F.A. Whiting

Vol. XVI. **JULY 1, 1888.** **No. 13.**

TERMS: $1.00 PER ANNUM, IN ADVANCE; 2 Copies for $1.90; 3 for $2.75; 5 for $4.00; 10 or more, 75 cts. each. Single number, 5 cts. Additions to clubs may be made at club rates. Above are all to be sent to ONE POSTOFFICE.

Established in 1873.
PUBLISHED SEMI-MONTHLY BY
A. I. ROOT, MEDINA, OHIO.

Clubs to different postoffices, NOT LESS than 90 cts. each. Sent postpaid, in the U. S. and Canadas. To all other countries of the Universal Postal Union, 18 cts. per year extra. To all countries NOT of the U. P. U., 42 cts. per year extra.

SOME FACTS IN REGARD TO THE INVENTION OF MOVABLE COMBS.

THE FIRST BEE-HIVE PATENTED IN THE UNITED STATES.

FRIEND ROOT:—I have just read your leader in GLEANINGS, and also the article of Charles Dadant, as well as the communication from Rev. L. L. Langstroth. It gave me surprise on reading your heading, "Who invented the frame hive?" You add, "A vexed question settled." I assume you do not bar futher authentic information, and I respectfully call attention to recorded evidence that bears upon the question, and ought to be duly considered before it is "decided" by the public. Mr. Stachelhausen asserts that the statement in Mr. Cheshire's book is incorrect; but Mr. S.'s statement is not supported by any proof. He says, it "has been proven many times that the first hanging-*frame* hive was invented in 1851 by Langstroth." The records show that Mr. Langstroth did not record his invention until Oct. 5, 1852. I forbear criticising Mr. S., for the reason his criticism is mere statements. I have no desire to controvert, but I do desire to point out what I know to be incorrect history. I believe that Mr. Chas. Dadant is not capable of intentional fault; but I know he is mistaken in some of the matters in his article. I have given special attention to the invention of bee-hives through a longer period than any other American now living, and I have all along been familiar with their history. I forward you an illustration of the hive which was awarded the first letters patent in America.

For the benefit of the bee-fraternity and said writers, I beg to refer them to certain records which afford more facts, and are more reliable than statements based on mere suppositions, and which facts set aside Mr. Stachelhausen's version, and materially qualify Mr. Dadant's version of the case. Mr. D. alludes to "Munn's" invention of a hive, making statements relating to the hive. Now, let us examine the unimpeachable records, and see how it is possible to reconcile Mr. D.'s statements with the records. Major Munn died some 20 years ago. He was a prominent scientist, English, a professor in the profession of Prof. Cook, and he gave special attention to bees, and is it not proper to mention his name respectfully? Mr. Wm. Carr, the well-known English apiarian, put upon record in 1874, that "Major Munn was the first to put comb-frames inside a box or case, the same as the modern comb-frame hives." He invented his hive in 1834, and, after testing it nine years, he took out a patent for it in Paris, in 1843. This record in the archives of Paris will not wipe out at the behest of scribbling partisans. He could not take out a patent for his hive in England, because, before he applied, the hive had been described and illustrated in the *Gardner's Chronicle* for 1843, page 317—another record showing Major Munn's priority and Mr. D.'s error. Major Munn described his hive in a pamphlet, in 1844; and in a second edition of it, published in 1851 (it is fair to presume that friend Dadant got his knowledge of the Munn hive out of or from the latest edition of said pamphlet), Maj. Munn exhibited his hives, etc., at the International Exhibition in London, in 1851. Whether or not Mr. Langstroth saw the Munn hive on exhibition, I know not; but Mr. Carr did examine it, and Mr.

L. has been accused of copying from the M. hive; and the accusations were made by parties whom Mr. Dadant would not dare to dispute until he gets better posted than he evidently now is.

Now, why do correspondents who are not well informed on the subject—history of improvement of bee-hives—attempt to teach others? The old gentleman, Rev. Mr. Langstroth, directly contradicts all who claim that he was the first or original inventor of movable-frame hives. Mr. Langstroth, in an article written in defense of his former claim of priority, and published in the Albany *Country Gentleman*, and which article editor Samuel Wagner copied on page 142, Vol. I., No. 6, of the *A. B. J.*, which number is before me (and I have a copy of the *Country Gentleman* dated Apr. 10, 1861, in which Mr. L.'s MS. was set up), and I copy verbatim: "Since my application for a patent, I have ascertained that, prior to my invention, other movable frames, besides those of Huber's, were in use in Europe." Does this settle the "vexed question"?

Again, I refer to records to correct Mr. Dadant's version of the Berlepsch hive. It is a matter of record, that Baron von Berlepsch and Rev. John Dzierzon invented a comb-frame hive, a description of which appeared in the *Bienen-Zeitung* of May 1, 1852. The hive was called "*Stehender Rahmenlufter*" (upright frame-ventilator), and the Baron mentioned that he "put bees in a hive with frames instead of bars, in June, 1843." In 1850 he put projectors on the ends of the tops of his frames to keep them evenly spaced. The Baron was of unquestionable repute, and his statements with the records do decide the question, and that, too, differently from the said writers in last issue of GLEANINGS. Mr. Dzierzon has not adopted or used comb sections, because he can, with his bar-hives, work his bees to better advantage than with the frames; and the reasons for such choice is, he is more competent to work bees scientifically by reason of his being a professional bee-master.

Mr. Dadant mentions that "the closed-end Quinby frame is the only outgrowth of the Huber hive." Pray tell me, sir, are not all comb-frame hives the outgrowth of Huber's leaf hive? Mr. Langstroth acknowledges that the Huber frame hive is what he aimed to improve. Our worthy friend Dadant, as umpire in the "vexed question" of inventors, gives the "race" to Mr. Langstroth. Now, isn't it too bad that the awarded winner should up and kick it all to smash? And is it not very ungrateful in the "Father" to go back, seemingly, on his stalwart disciples, and surrender all the glory that has garlanded his name near a lifetime, as the inventor of *the* Eureka hive to Mr. Heddon? Strange indeed! But such is life in a rolling, inconstant world.

Richford, N. Y., May 22, 1888. C. J. ROBINSON.

Friend R., we are much obliged to you indeed for the very valuable facts which you furnish, and which, no doubt, as you say, could not have been furnished by any other man living than yourself. The heading in small capitals on the article you allude to was a mistake, and should not have been permitted to go into print. I have no idea that the question will be settled as to who was the inventor of the movable-comb hive. Very likely there were inventors and experimenters with combs built in frames that have never yet come to light. The age was ripe for development and progress in this line of work, and therefore quite a number of persons in different parts of the world were experimenting in the same line, oftentimes without one knowing what the other was doing. It is almost impossible that one man should bring out an improvement of this kind. Our section boxes for comb honey, our best hives in modern use, the honey-extractor, and all of our modern conveniences, have been the work of multitudes. Occasionally a single individual gives things a big lift forward; but it is very rare indeed that a complete invention is made by any one individual. Like the bees in the hive, he simply takes up where somebody else left off, and pushes the work forward.

I have been very much interested indeed in looking over the leaf of that old paper, the *Cultivator*, you were so kind as to send me. I find no date in the paper itself; but the communications are all dated 1841. John M. Weeks, inventor of the first hive patented in the United States, writes quite an interesting essay on bee culture, dated West Farms, Salisbury, Vt., May, 1841. I suppose this paper called the *Cultivator* is the same that is now called the *Cultivator and Country Gentleman*.

I feel, my good friend R., from some of the remarks you drop, that you do not quite understand our good friend Langstroth, and our friend Dadant as well. Very likely you are in position to correct some minor mistakes of our modern writers; but it does not seem to me as if there were very much conflict between your statements and those given by Dadant and Stachelhausen; that is, the discrepancies are of no particular moment, either one way or the other. Quite a number have suggested that, when Mr. Langstroth gave our friend Heddon's hive such a recommend, he indirectly suggested that the Langstroth hive was, after all, *not* an improvement on the hives before it, but, rather, a retrograde. I believe, however, that a good many of us are not ready just yet to accept this latter statement. In the above old paper we find an inquiry for the best work on bees. This inquiry is dated Monroe, Mich., April, 1840. The editors answer as follows:

> John M. Weeks' "Manual, or Easy Method of Managing Bees," is one of the best works on the subject published in this or any other country, and shows a knowledge of this valuable little creature, not equaled or exceeded by any writer since Huber.

A PECULIAR SEASON.

FRIEND DOOLITTLE TELLS US HOW THE JUNE FROSTS UPSET HIS CALCULATIONS, ETC.

THE season here in Central New York has been a peculiar one thus far for bees. One warm day, so the bees could fly, March 27th, as nearly as I can remember (I am keeping no diary this year, on account of so much "biz"), was the only chance of that kind they had from November till April 26th. The last five days of April were extremely warm (the mercury going to 87° in the shade), considering the cold before it. With May it came cold again, and held so during the first 7 days. It then came warm again, and brood-rearing progressed finely. My bees were set from the cellar the 26th and 27th of April, in fairly good condition, and I hoped that the brood under progress the first half of May would come to perfection without a setback; but just before young bees began to hatch to any extent it became cold, with rain, wind, snow, and ice, holding them for nearly ten days, during the first of the latter part of the month. This caused a dwindling of some colonies, such as I never saw before. Good colonies, with brood in fine combs, so died that all about the front of the hives the ground and alighting-boards were literally covered with dead bees, the most of which were those which had come through the winter, while the bottom-board and combs were covered with dead and dying young bees which seemed not to have vitality enough to exist without their older sisters. Two fair colonies went down so as to entirely die, and three or four good ones became nearly worthless. Others, no better than these, held right through, scarcely losing a bee, and are to-day (June 16th) lively on the white clover just opening along the roadsides. Now, who can tell us why a part suffered so under the cold, and others did not, all being alike, as far as I could see, two weeks previous? I confess that there are a few things in bee-keeping that are entirely too high for me. Not a colony wintered out of doors seemed to suffer in any such degree as did those from the cellar. Apple-trees were in full bloom about the first of June; but, owing to rain and clouds, the bees got very little from them. During the nights of the 1st, 2d, 3d, and 6th of June, ice formed on the tin roofs of my bee-hive covers so as to stand up like brass buttons, which again caused brood-rearing to nearly cease; and colonies having drones hatched felt so poor that they killed them off except when a large supply of honey was in the hive. It is now warm, but wet; and if the rainy weather cease, there is still a chance for a good report this fall.

QUEEN-REARING.

I had determined, if possible, to get to queen-rearing earlier than usual this season, so as to fill orders from parties desiring early queens; but the thing was impossible; for during our cold weather I could not get a cell started that was good for any thing, much less queens hatched and fertilized. When I saw this was to be the case I determined to keep a good quantity of nice drones I had in one hive, by feeding, and send south for virgin queens to be mated here. This I did, and, being quite successful in introducing, I soon had queens to fill the orders of those saying, "Send me a queen by return mail to save my queenless colony." I now have nice cells of my own under headway, and hope to be filling orders lively in the near future. In order to overcome these unlooked-for circumstances, so as not to be censured, I worded my advertisement so as to read, "Queens in their season," for a few feel disposed to censure an advertiser for not performing an utter impossibility, as the rearing of queens during the month of May usually is here at the North.

INTRODUCING QUEENS.

The old saying is, "All signs fail in a dry time;" and so for myself I would say that all plans of introducing queens are liable to fail now and then, although I have not had a failure as yet with the caging of bees in a box without combs or brood, and giving them a queen in three or four hours when they begged one, as I have given in back volumes of GLEANINGS. But as this is a process not easily resorted to in early spring, and is too laborious for only ordinary queens, I use quite largely a plan of introduction similar to the Peet-cage plan, using a large open-sided wire-cloth cage to stick on one side of a comb in place of the Peet cage. This I have described before in GLEANINGS, so I will not repeat it. The main feature about this cage is the placing of it over hatching brood, and allowing it to stay over the queen and young bees till the queen fills the vacated cells with eggs, after which she and her escort of young bees are liberated. Previous to this spring I had never failed in this way; but during our bad weather I had one queen killed and two others balled upon letting out, after the queen had laid in every available cell under the cage.

GETTING QUEENS STUNG.

I here wish to caution the readers a little about queens that are balled. As all know, a queen is rarely stung during the first few hours after she is balled, and, as a rule, no fears need be had about a queen being harmed in handling this ball of bees in liberating her; but I have found to my sorrow, that, after she is liberated, if a single bee of the ball is allowed to get back to the queen it will sting her. To illustrate: Without giving the particulars of dispersing the bees in the ball, except to say that it can be done by dropping the ball into water, or by smoking, I will relate a little experience. A valuable queen was balled; the ball was dropped into a caldron kettle of water near the edge of the kettle. The queen and bees crawled on the rim to the kettle, and, as I was about to pick up the queen, a single bee caught her and stung her in an instant. Again, a ball of bees was smoked on a comb, and, as the clinging bees let loose, the queen, with two still-clinging bees, fell off the comb to the ground, the bees letting go as they struck the ground. One immediately ran up and stung the queen. Once more: A liberated queen in a weak swarm ran around on the back side of a comb with a few bees on the back side of it; and, before I had decided just what to do, a bee from the ball I had smoked loose came around the other edge of the comb, grabbed the queen, and both fell to the bottom of the hive, she being stung before she reached the bottom. This last named (though happening first) was the most valuable queen I ever had killed. G. M. DOOLITTLE.

Borodino, N. Y.

I believe most of us, friend D., have had a similar experience in trying to raise queens in April and May. I have had enough queens stung just as the ball was made to disperse, either by smoke or by throwing them into water, so I have become somewhat nervous about it. I always watch the queen, and follow her after liberating her from the ball; and if any bee shows the least disposition to sting, I give him a punch that makes his bones crack, usually before he can harm her. I do not always kill the little rebel, for a worker-bee will stand considerable crushing and get over it; but I generally kill out the disposition to sting, for a time at least.

WIRE-WORMS.

PROF. COOK TELLS US ALL ABOUT THEM AND THEIR NEAR RELATIONS.

PROF. COOK:—Inclosed find a species of worms which eat almost any thing they happen to come across. They totally destroyed my first planting of cucumbers, not leaving a single hill with plants in, and partially destroyed my early cabbages and tomatoes. The tomatoes are in bloom nearly two weeks, but are going down daily. I took as many as fifteen from a single stalk. They go inside and up to the top of the stalks, and eat them clean up. Please give their name and habits through GLEANINGS; also a remedy for them. J. M. KEHRES.

Rebucks, Pa., June 9, 1888.

Prof. Cook says:—

These insects are the common wire-worms. They are by far the most to be dreaded insect of which I know, for they are the hardest to combat. The beetle that lays the eggs is one of the snapping spring, or elater beetles, so called because of a curious spring-pole beneath their bodies between their front legs, which enables them, when placed on their backs, to spring up and alight on their feet. These beetles are somewhat boat-shaped, and brown in color. These beetles lay their eggs about the stems of grass and other herbaceous plants. The larvæ, or grubs that hatch from these eggs, are also brown, or yellowish brown, and are well named, as, when we look down upon them, they look not unlike a wire. These feed as larvæ for three full years. As Mr. K. suggests, they are indiscriminate feeders. Potatoes, wheat, grass, cabbages, and even onions fall a prey to their voracity. They will not eat buckwheat; languish on peas, and are usually found to refuse beans. They occasionally eat the latter. If I knew they would not take affront, I would suggest that possibly in such cases they did not know this vegetable.

As these wire-worms often come in myriads, it is hard to cope with them, especially in field culture. We may hope to starve them out by resorting to the summer fallow. It were better, perhaps, to grow buckwheat or peas, and not let the land lie idle. It is worthy of remark, that these insects often do small damage when grass is plowed, the first year after the sward is broken up, while the second or third year they do terrible damage. It is probable that, in such cases, they feed on the grass-roots the first year, and the crops the two following seasons.

In garden culture, such as Mr. K. is engaged in, there is another remedy long practiced in England, and which D. M. Ferry & Co., of Detroit, Mich., have practiced with some satisfaction as follows; They bury potatoes in the garden, running a stick through each tuber to mark its location. The grubs, or wire-worms, gather on the potatoes, which are frequently dug up, and the grubs destroyed. Tedious as this would seem, I doubt not that it would have paid Mr. K. richly. The myriapods (thousand-legged worms) are also sometimes, though incorrectly, called wire-worms.

Agricultural College, Mich. A. J. COOK.

Why, friend Cook, you astonish me when you say that wire-worms are the larvæ from the snapping-bugs we boys used to have so much fun with. You do not say any thing about the great big eyes these snapping-bugs have, that make them look like an owl with green goggles. Are these great spots eyes, or are they simply one of dame Nature's oddities? And then, again, the idea that these wire-worms live three or four years in the larval state! Why, I did not know before that there was any insect in the world that existed so long in that state. I thought that I knew a little about entomology, but it seems to me I do not know very much, after all. If the wire-worms are fond of potatoes, why can't we soak the potato in some arsenical poison, so as to have them die without any further bother?

POISON IVY.

DOES IT YIELD HONEY?

FRIEND ROOT:—I inclose with this some leaves, flowers, and berries of what is widely known as poison ivy. My object in so doing is to make sure that there may be no mistake or misunderstanding with regard to the species of plant we are discussing, and with the desire that you or our good friend A. J. Cook will give us some facts concerning it. In one of my morning strolls I noticed quite a number of bees at work upon its blossoms, apparently gathering honey from it. I am sure they were not visiting it for pollen. Now, if it is honey-producing, is the honey poisonous? and if poisonous, would a very small quantity mixed with other honey (say white clover) render the whole contents of the hive unfit for use? Some facts, also, concerning the susceptibility to poisoning of persons coming in contact with it, and remedies for the same, will be appreciated.

J. FRANK PARKER.

Philadelphia, Pa., June 10, 1888.

We sent the above to Prof. Cook, who replies:

The plant above is surely the poison ivy, or *Rhus toxicodendron*. It looks much like our most beautiful American climber, the ampelopsis, or Virginia creeper (*Ampelopsis quinquefolia*). It can be readily distinguished, however, at a glance. Here the leaflets are in threes, or it is "trifoliate," while in ampelopsis there are five leaflets, as the name implies. This climbs by rootlets, while the Virginia creeper climbs both by rootlets and tendrils. As Mr. Parker says, bees do gather honey from this plant. I have often seen them on it. Because the plant is poisonous, is no sure sign that the nectar it secretes will be so. Indeed, the experience of all the ages plainly avers, it seems to me, that it is not. I should have no fear from my bees visiting this plant. Indeed, the reports that any nectar is poisonous need investigating. Such poisonous honey is so rare that one may well doubt its existence at all. There are other ways to explain the facts that have led men to believe that honey from some plants is poisonous.

We have poison ivy and poison sumach, rhus venenata, very common about here. Many of our students have been seriously poisoned by simply coming in contact with it. It produces erysipelas, which is often very severe and persistent. The best remedy is to keep away from it. Neither ivy nor sumach affects me. A. J. COOK.

Agricultural College, Mich.

MRS. LUCINDA HARRISON.

APIARIST, AND AUTHOR ON BEE CULTURE.

WE extract the following from Bonham's "Fifty Years' Recollections," published in 1883. It probably gives as many facts in regard to Mrs. Harrison as any thing we can obtain. Our readers are more or less familiar with her writings, which have already appeared in GLEANINGS more or less for the past ten years.

The lady whose name stands prominent among the successful bee-culturists of the present time is a native of Ohio, born in 1831, and came to Illinois with her parents, Alpheus Richardson and his wife, when a child, they being among the pioneer settlers of Peoria County. Her early advantages for an education were limited. She received a few months' tuition at a private school; this gave her all the scholastic training she received, outside of the common school; but she was a close student, and commenced teaching as a way of support and self-culture. While busily engaged in teaching, she made the acquaintance of a prosperous young farmer, Robert Dodds, of Woodford Co., Ill.; and, their minds and dispositions running in the same channel, they were married, and our successful schoolteacher was transferred to the home duties of a farmer's wife, with all their laborious cares and responsibilities. But, after two brief years of happy farm life, her husband died, and she was left a widow. In 1866 she was again married, to Lovell Harrison, one of the substantial citizens of Peoria.

MRS. LUCINDA HARRISON.

After her second marriage she engaged in the amateur cultivation of small fruits, as the state of her health made it necessary for her to have outdoor occupation, air, and sunshine. With the cultivation of small fruits she added bee culture, and in this she has been eminently successful. She commenced her press contributions to Colman's *Rural World*, St. Louis, and to the Germantown *Telegraph*, Philadelphia, at first in the pomological, horticultural, and housekeeping departments of those papers. But it is as a writer on bee culture that she has gained a national reputation. Her contributions to GLEANINGS IN BEE CULTURE and the *American Bee Journal* have elicited high commendation from apiarists from all over the United States. She also contributes instructive papers and descriptive articles on the practical operations of conducting the apiary, to the columns of the *Prairie Farmer*; and for several years past has had charge of the Apiary Department of that paper. This, combined with her eminent success in the practical management of the apiary, has given her a reputation, and made her an authority on the management of bees that is second to none in the country.

Mrs. Harrison combines a thorough knowledge of the natural history and habits of the honey-bee with the minutest details in the management of the apiary, which has placed her in the front rank of lady bee-keepers of our land. She is a member of the North American Bee-Keepers' Association; and at the annual meeting of that organization held at Lexington, Ky., in Oct., 1881, was elected vice-president for the State of Illinois. Her apiary at present consists of over one hundred colonies of Italian bees, and is considered one among the best managed in the State.

Mrs. H. delivered an essay before the farmers' institute held at Peoria, in Feb., 1888, under the auspices of the Illinois State Board of Agriculture; subject, "Bees and their Relation to Agriculture and Horticulture," which received high commendation from the press of Peoria and from the board, and has been quite extensively copied by the press of the country.

In addition to the above, I wish to say that Mrs. Harrison has endeared many to her by her frank, honest way of speaking and writing. In reading only a few paragraphs from her pen, one is reminded that she tries to give real facts, and does not put bee culture or any other rural occupation in a romantic, moonshiny light. I remember reading, years ago, one of her little sketches in the *Prairie Farmer*. She was very enthusiastic on bees, and, being detained in a little town away from home while waiting for a train, or something of that sort, she naturally inquired if there were any bee-keepers near. On being told that a shoemaker close by was a bee-man, she sat down to talk with him, and chewed shoe-pegs while he gave her practical facts from his experience with bees; and I have sometimes thought that this little pen-picture was a fair picture of her life and life-work. She is always gathering facts, which she imparts in her quaint way; and yet her quaintness is not at all put on — it is perfectly natural. She was present at the Bee-keepers' Congress in New Orleans, and she has been present, I believe, at most of the national conventions. While at New Orleans, one of the topics was, as nearly as I can recollect, in regard to bee-keeping for her sex. As she did not take any part in the discussion, somebody desired to hear Mrs. Harrison on the question, "Is bee-keeping suitable for ladies?" she arose and said, very quietly, that she did not know as she could answer as to whether bee-keeping was suitable for *ladies* or not; but added, very promptly, "Bee-keeping is suitable for *women*." And then she spoke of the poor health which had always been one of her trials, and mentioned the relief and help she had found in studying and caring for honey-bees, and in open-air work of a like nature.

The following, just from her pen, will perhaps give our readers a fair illustration of her descriptive powers in writing:

Mr. Root:—

I was in the same condition this spring that the Dutchman was who got his son John to help him tame an unruly bull. The old man got him by the tail, but soon was calling, "John, help me let go!" I wanted to let go some of my bees, but no one would help me.

The income from our apiary thus far this season has been the dead bees for manure, and the scrapings of the hives for wax. There is not one spoonful of new honey in our apiary at present (June 19), and there has been scarcely a day's rations ahead this season. In early spring, our partner in the sweets and stings said, "Do not feed the bees unless to prevent starvation, for there will be no white-clover honey." So our bees were left to follow their own sweet will, and I am pleased with the result. Formerly I did a great deal of very hard work, lifting bees from their hives to clean ones, spreading brood, uncapping honey, strengthening the weak with brood or young bees, etc. I must be a poor doctor for diarrhetic bees; for when I gave them a clean hive, fresh combs of honey, and tucked them up warm, they died; but this year, when I let them alone, they lived. They were so weak and sick that I thought it impossible; but this week, when I changed them to a clean hive, they were quite respectable colonies. MRS. L. HARRISON.

Peoria, Ill.

Please notice, friends, that she gives us the plain facts of the case. As we have had two poor seasons already, it will be a little consoling to some to receive a cheering report, even if the prospects so far are not very flattering. She tells it, however, just exactly as it is, and yet one gathers from her manner of speaking that her cheerfulness and hopefulness are not to be disturbed or upset by even *three* seasons of scarcity of honey in the fields. I want to add, that my experience in tucking up bees in the spring, moving them into clean new hives, etc., has been such that I often tell the boys they will do more harm than good when they feel like overhauling the hives in March, and even during the cold weather of April. Give them plenty of stores in the fall, and then don't fuss with them until we have settled warm weather. Giving them clean new hives sounds very well to the beginner; but I am inclined to suspect that the old hives, all waxed and gummed up, just as the bees fixed them the fall before, are a great deal better for them than the brand-new ones, supposing, of course, that the old hives were constructed in the first place as they ought to be.

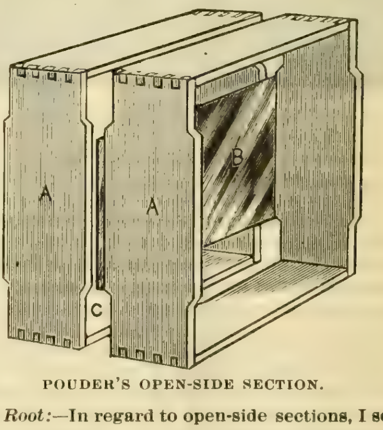
ANOTHER OPEN-SIDE SECTION.

ONE THAT CAN BE GOTTEN INTO AND TAKEN OUT READILY FROM AN ORDINARY SURPLUS ARRANGEMENT.

SO far as theory is concerned, we believe there is no question but that the open-side section possesses points of superiority over closed sides. This *may* or may not be true in practice; but so far hardly sufficient time has elapsed for them to be thoroughly tested. Mr. J. H. Robertson, from an experience with 1000, is thoroughly "disgusted with them." Mr. Foster and quite a number of others, however, think them to be a good thing.

With any of the open-side sections hitherto constructed, there is certainly one quite serious difficulty; and that is, getting them in and out of an ordinary surplus arrangement without hitching and catching. Those jutting corners are a perfect nuisance. Besides, they must necessarily hinder somewhat in scraping off propolis. The former defect can be obviated by having a case with adjustable side or end, or a case large enough to admit the use of a follower and wedges. We have never yet seen any adjustable side cases which really struck our fancy. Although we have never tried them, it seems to us they are too complicated, and too difficult of manipulation. But perhaps the one used by friend Foster is as good as any thing.

Partly to obviate the aforesaid difficulty of ready insertion and removal from cases, and partly to get a section possessing the advantage of the regular open-side, and yet one which would hold separators, our friend Walter S. Pouder has constructed another open-side section, or rather a closed side with open corners. The following is the cut representing the section, together with Mr. Pouder's description.



POUDER'S OPEN-SIDE SECTION.

*Mr. Root:—*In regard to open-side sections, I send to-day a sample of my own get-up. They are not exactly open-side sections, yet the bees have access in every direction. They please me more than any other section that I have ever seen, and I have tried to keep posted. My bee-keeping friends are all enthusiastic over this section.

WALTER S. POUDER.

Groesbeck, O., May 21, 1888.

The projecting sides should be the same width as the separators used—3½ inches wide. B is the separator. The sections, A A, are brought together close to the separator, and hold it properly.

Now, there are two or three important advantages in these sections, though they may be overbalanced by the objections. These advantages, as they occur to us, are (1) that there are no projecting corners to hitch and catch in putting in and taking out the super. The beveled corners, as at C, make it possible for the projecting sides to slide by each other without a hitch or catch. They do not, therefore, require a case with adjustable sides. There is plenty of finger-room to grasp the sections. Should it stick on account of propolis in the crate, you can easily grasp the corners and give it a pretty hard pull without breaking. (2). The separator will be held properly in position, providing there is a support to hold it up to the proper height at each end of the super used. (3). We do not know from experience, but we imagine it will be easier to scrape propolis from them. (4). They are well adapted for wide frames, either single or double tier. (5). The bees can pass through the sections from side to side, and yet there is no interference because of separators.

In spite of these good features there are some quite serious defects. A moment's reflection will convince you that it can not be used in the T super, much less in the Heddon crate. These two kinds of crates, if we are correct, are most in use by bee-keepers throughout the country—that is, those bee-keepers who do not make use of some sort of wide frame. What we want, and what we should like to have, is something which can be adapted to supers that we have already in use. But, you ask why it can not be used in the T super. If you will reflect a moment you will see that the upright of the T will necessarily close the space C, leaving only the upper corner for the bees to enter the section from the side. The space C is just ⅜ in. high, and the upright of the T tin is exactly ⅜ in. high. (3). Another defect is the expense of construction. In talking with our foreman this morning, we found that it would require almost an entirely new set of machinery to make sections of this description. If you will imagine that one of the sections, A A, is made of one piece, and laid flat, just as you would receive them boxed, you will see that there will be first one little inset, ⅜ inch wide; next an inset just exactly 5 inches wide; again, another inset 4⅝ inches wide. You see, the cutter-knives would have to be constructed of various widths; and not only that, but have a width considerably beyond any ordinary width. Four-piece sections can be made on this plan, perhaps a little cheaper. But even *they* would cost more than the ordinary four-piece. If there should ever be demand enough for them, they could be constructed so as to be sold as cheaply as common sections, and so the last objection would be obviated. If any one desires to try a few, we would refer him to friend Pouder, as above. We would say, in this place, that friend Pouder has made a good many valuable suggestions in apiculture during the past few years, among which we might mention his bee-trap, which we illustrated on page 166, 1883, and have since incorporated in the A B C of Bee Culture.

THE GROUND-BEETLES.

SHALL WE DESTROY THEM?

MR. LOUIS STEPHENS, Redstone, Pa., writes me that, on June 11, he pulled up a plum-sprout hard by his bee-hives, and found under it a "bug" (beetle). "Please give its name, and state in GLEANINGS if it had any object in being so near the bee-hives."

This insect, sent loose in a wooden box, came in a somewhat broken condition. A little cotton, or tissue paper in the box, would have prevented this, and saved a most beautiful specimen from ruin. This beetle—for it is a beetle, not a bug—is our handsomest ground-beetle, and, indeed, one of the most beautiful beetles found in our country. It is as handsome as the glittering insects of Brazil which are set as gems to be worn as ornaments. This beetle is known in science as *Calosoma scrutator*. It is fully one and one-fourth inches long; its wing-covers (*elytra*) are brilliant green, with depressed rows of punctures, and margined with an elevated border of shining crimson. The shield-like prothorax just back of the head is rich blue, shining with a metallic luster, and bordered with a depressed brownish-yellow line, the outer raised margin of which is also of the rich blue. The head, mouth-parts, and antennæ are also blue, varied with the same brownish yellow, and all shining with a brilliant luster. Beneath, this gorgeous beetle is variegated with shining green, brown and blue.

A near relative (*Calosoma calidum*), a little smaller and much more common, is black, dotted with rows of copper-colored or steel-colored spots.

These beetles are not only absolutely beautiful, but, like all the great family to which they belong, they are illustrations of handsome is that handsome does. They are predaceous, and destroy immense numbers of cut-worms, white grubs, and other subterranean insect-pests. They do this both while grubs—when they are black and armed with strong jaws—and when mature. It is very interesting to see the grubs of our calosoma calidum attack a huge cut-worm or white grub. At first its larger victim rolls and tumbles it about as though it were a foot-ball; but soon its endurance and grit assert their superiority, and the cut-worm gives up, only to be devoured by its little conqueror.

This family of ground-beetles is a very large and important one. The beetles range from minute species to those the size of the one here described. They are nearly all black, and are so common that we can hardly turn over a log or stone in summer without seeing one or more run away as they are startled to see their very habitation from roof to basement carried away. From their excessive numbers we are sure that they must destroy an enormous number of our insect-enemies; and without them we should doubtless be at the mercy of these same ubiquitous pests. It is more than likely that some evil or calamity which befalls and destroys these our good friends, ever and anon, explains why our insect-enemies often prevail in such overwhelming numbers. Even this year the army-worm and cut-worms are doing terrible damage in many parts of our country.

These ground-beetles are often sent me by persons like Mr. Stephens, who know not their habits and value, with the inquiry: "How shall we exterminate them?" I always say, "Never kill them. They are your very good friends: to kill them is to slay the goose that lays the golden egg." How desirable it is that our very children should be taught the nature and habits of some of these most common and important of nature's agents!

Let me add, that these ground-beetles are usually black, with long slim bodies and long legs, and so are very swift of foot. Thus it is easy to know them. A. J. COOK.

Agricultural College, Mich.

Thanks, friend Cook. I will tell you what I should like, friends. I should like a picture and description of all our useful insects; and if it would not cost too much, I should like a little case containing a sample of every bug that ought not to be killed. Every little while the boys ask me whether such or such bugs shall be killed or not. On our squash-vines we sometimes find a bug dotted over with round black spots, and somebody has said that these are lady-bugs, and that they should not be killed. Friend C., will you please enlighten us a little?

MODERN BEE CULTURE ON THE ISLAND OF MINORCA, SPAIN.

AN ENCOURAGING REPORT FROM SOME OF THE FRIENDS OF GLEANINGS ON AN ISLAND OFF THE SPANISH COAST.

MR. ROOT:—As I promised, I think I must drop you a line. And, first, allow me to explain. Three years ago I introduced the first movable-comb hive into these islands. The thing was so novel and unheard of, that people in their blissful ignorance laughed at me like so many "goodies." My only ambition was to produce section honey, of which I had read a great deal; and when, finally, I succeeded in taking over 100 one-pound sections from a single hive, no boy with a new top was ever so happy, and I was praised and lauded to the skies by the press.

Having no direct communication with the United States, my goods were brought from England. Now, my eldest son manufactures and keeps on deposit all sorts of bee-fixtures, for this fascinating industry has become quite popular. We send hives and all that the word signifies to many parts of Spain, where we have many adepts, owing to the *Madrid Illustrated News* having published an engraving of our home apiary of some 30 hives. This spring we have set up an apiary of over 100 hives in the interior, and the joint products of the two are now being set up for exhibition in the Barcelona Exposition. The honey is very fine, and the honey-flow not so short in the interior. Rosemary, clover (alsike), thistle, orange, and other flowers and medicinal plants produce a beautiful and superior article. Heather bloom in the fall (November and December), and almond-bloom and rosemary in January and February, keep the bees —well, not in *clover*, exactly, but something very much like it.

GLEANINGS is so welcome here, that, by its side, our French and Italian apicultural reviews sink into insignificance. We are also constant readers of the *British Bee Journal*, and like it very much. Indeed, at one time I had come to the conclusion that it was about the best apicultural review published in the vernacular; that, somehow, American bee-writers were more inclined to "sling ink." This was before I commenced reading GLEANINGS, and your matter-of-fact way of editing it. I am now again "loyal to the Union." Allow me to except its (GLEANINGS') dogmatical part. Pardon me, but dogmas, like politics, seem somewhat out of place in a purely apicultural publication. However, one can not but honor the sincerity of its editor, for, after all, a sensitive and especially a clean conscience is a good thing in a family.

This reminds me how, some 40 or 50 years ago—so long ago, in fact, that one hardly remembers—I was occupying the post of printer's devil in a New England office, and how, on fast-days and Thanksgiving, the editor, Mr. Stowe, used to "spread himself." Those were happy times! Now *we* also publish an apicultural review—a wee little thing, with no pretensions at all.

Well, well, friend Root, let me say that such publications as your A B C and GLEANINGS are not to be found on every or any bush, and the Milan *Apicoltore* evidently thinks so too, for it translates many passages from your writings, and holds you as one of the prophets.

I have this season tried Mr. Cowan's system of *doubling* on five of my best colonies. The push infused into the already strong stocks was remarkable. Those despoiled of their brood—all with second-year queens—also worked wonderfully, in ten or twelve days pulling out the eight frames of foundation (they were allotted to supers), and capping the brood in them, some of these combs not containing a single cellful of honey—all brood, clear up to the top and side bars. I never saw such splendid brood-combs. But we had a drouth, and the honey-flow lasted only some 20 days; and during that time but a small percentage of forages could be spared from these hives. Result, almost a failure, and too many bees when not needed.

The hives doubled with their brood worked wonders, but I rather think our queens are too prolific; and the greater part of the stocks, instead of filling these combs with honey, allowed the queen to again monopolize them. Result, some 18 or 20 frames, nearly two stories occupied with brood, and now too many bees lying idle.

Let me conclude by asking, Does what you call the T super mean the top super, or what does it mean? F. C. ANDREU.

Port Mahon, Island of Minorca, May 27, 1888.

Friend A., I feel greatly encouraged indeed by your kind words and kind letter; and I value them all the more, from the fact that they come from a brother-editor. Now, I want to thank you again for the high compliment you pay me, even if you do make a little hit at the Home Papers. I have tried to conduct them in such a way that every good man and woman could assent to most of the points I have made, without discussion. Our readers will find, on page 270, April first, an editorial notice of the journal published by friend Andreu, in the Spanish language. I am very glad indeed, friend A., that you have succeeded in getting as much as 100 one-pound sections from a single bee-hive. I remember quite well what a sensation it made in our own community when I began to talk about *barrels* of honey. But the interesting part, as you put it so vividly, came in when I began to stack up the beautifully finished sections in our stores and groceries.—The T super is simply a form of super, or top case, where the sections are supported by bars of tin, folded in the shape of a letter T. They have been fully explained and illustrated by drawings in our recent back numbers.

IS TOBACCO SMOKE OFFENSIVE TO BEES?

ONE WHO HAS TRIED IT, GIVES HIS EXPERIENCE.

WE hear quite a number of bee-men recommend the use of tobacco smoke to quiet bees. If this were the only way to subdue them I should be compelled to let them sting, because I never use the weed. But I have had some experience with the use of it, however. One of my customers, in selecting a queen from my apiary, used tobacco smoke in several colonies. It seemed to quiet the bees at the time, but, oh what a time we had the next day! They did their best to resent an insult, and would make a person wish he had never seen a bee. I could hardly believe it was the smoke that caused them to be so vicious; but I made a close examination of the other colonies near, and they were very quiet, and could be handled without the use of any smoke. I should like to hear if any others have had a similar experience.

I used to be troubled very much by the bees being drowned in our watering-tank, and they annoyed the horses also; but since I have watered them in the apiary I have not seen a single bee getting water at the tank or near the pump. I give them water in glass jars. One of them contains salt water, about one-fourth teaspoonful of salt to one quart water. I keep them in the shade, side by side. Sometimes one jar is dry and they go to the next one. When they once learn that they can always find water in one place they will come there just as surely as chickens will stick to their coop.

Bees are gathering honey now quite fast, although their hives are nearly empty of honey on account of breeding fast. J. T. VAN PETTEN.

Linn, Kan., June 16, 1888.

Friend V., my experience over fifteen years ago was about exactly as you put it. When I first began to keep bees I was told that nothing would do but tobacco smoke, and accordingly I provided myself with several packages of cheap tobacco. It drove the bees, without any question; in fact, I drove them several times almost entirely clear out of their hives. But I soon began to think that, even if they were so sickened and stifled they could not show fight, they formed big resolutions while they fled in dismay. Perhaps their resolutions were something like this: "If we ever get over the effects of this, if we don't give that fellow the best volley of stings that ever a bee gave anybody, it will be funny." Sure enough, when next I wanted to handle them, if I did not have my tobacco smoke well going before I came near the hive, they did use their stings, I tell you. Sometimes since then I have used tobacco, when it was at hand, on an exceedingly vicious colony; but I do not believe it pays.

PATENT-RIGHTS ON BEE-HIVES.

FRIEND LANGSTROTH CONSIDERS THE MATTER STILL FURTHER.

FRIEND ROOT:—I thank you for receiving my criticisms so kindly as to prefix to them that text from Scripture. Prof. Cook's Manual having been mislaid, a friend sent you a longer quotation from it than was needed. I have never written any thing, from which you have a right to infer that I ever was in substantial agreement with the opinions you have been so long promulgating on the matter of individual rights. I do agree with Prof. Cook, while you strongly dissent from him (see GLEANINGS, 1875, page 79; and 1883, page 367, and 1888, page 451). Asserting "the absolute right of any inventor to patent any original patentable device, and the absolute wrong of parties who knowingly infringe upon valid patents?" how can there be any substantial agreement between us when you declare, "I feel perfectly safe in saying that it is not just or fair or right or best that every one who desires to experiment with or use these things you have mentioned should be compelled to pay Mr. Heddon $5.00 for an individual right"? If such doctrine is to mold public sentiment, then the *prudential* reasons which I gave against patenting any thing which can be easily stolen, could have more weight than ever.

From some things which you have written, or allowed to appear unchallenged in GLEANINGS, you antagonize the patent-policy of our most civilized nations, and seem to think that it is the absolute *duty* of an inventor to patent nothing, but to invite the world to a free feast upon the product of his brains! You have surely taught that all inventors of bee-devices should spread such an open table, by publishing on your outside cover and title-page these words: "While I earnestly try to maintain a broad 'charity for all, and malice toward none,' and while I do not wish to take upon myself the responsibility of dictating a course for others, I feel it a duty to discourage with all my might, both by precept and example, every thing in the shape of patented bee-hives, or patents on any thing pertaining to bee culture. On the other hand, I shall try to encourage every one to do all in his power to advance the common good of all. I do not believe the world 'selfish and grasping,' but have unlimited confidence in the disposition of our people to desire to pay for every thing they get, and to reward those who work for them disinterestedly, when they once get a clear understanding of the matter. If you have made a valuable invention or discovery, give it to the people, rejoicing that you are able to contribute your mite to the common good, and in seeing others happy, and, sooner or later, you will surely have your reward. *Nothing that we advertise, in the shape of hives or implements, is patented.*"

Friend Root, are you not laboring under a strange delusion in thinking that, after such utterances, you can "stand where you can appreciate what friend Heddon" (or any one else) "has done for the bee-keeping world"? Let him name that word of ill savor, "*patent*," and, instead of any such judicial impartiality, our unfortunate inventor must expect to meet you full armed on the battle-field; and if you can, you will, as a *knight of duty*, surely ride him down in the encounter!

But let us suppose that the inventor of some valuable patentable bee-device takes your advice, and gives it to the public. Now, when all the world has a legal right to make and sell it without any accounting to him, we will suppose that you do what you have so often done and advised others to do—send him a sum of money, that you may feel honorably at liberty to make and sell his invention. If there is a good demand for it, what more natural than that its inventor should think that he ought to get more out of it than you have given him? It is very easy for you to say, "I have no monopoly on it. Let him make and sell it himself." How much does this help him, when he has no GLEANINGS with over 8000 subscribers to make its merits known at a minimum of cost, nor any big factory where he can make it at a price that defies outside competition? You have the market so largely to yourself, that you inevitably get the lion's share of the product of his brains. You can reply to this, "Was not GLEANINGS and our supply-business built up by honest industry? and is it not the privilege of every one to build up a like business for himself?" Indeed, these are the very words which you used in writing to me, when I called your attention to this common-sense view of the matter. It does not seem to me to rise above the level of what some of our great "trust" corporations might sneeringly say to any poor distanced rival.

Can you not see this, friend Root? If you can not, truth requires that I should say plainly to you, that intelligent bee-keepers do see, that, however sincere you may be in teaching that it is wrong to take out bee-patents, you preach a doctrine most admirably adapted to promote your own pecuniary interests.

In one of your comments (1883) on my views, you said, "I would suggest that the improvements in bee culture are almost invariably found to be the work of many people; or, if you please, the result of little suggestions thrown out by a great many bee-keepers. In view of this, can any one man very consistently attempt to monopolize the whole of any invention?" In your late letter to Prof. Cook you say, "When you get into this business of individual rights, it is like deciding when sweet cider becomes sour or intoxicating." As this kind of reasoning seems with some to have great weight, I would ask, if bee-patents differ so widely from those in other departments, as seems to be taken for granted by such a loose way of talking, who can name a single valuable invention which is not largely dependent upon the knowledge amassed by others besides its inventor? We are looking, for example, at an immense bridge, which, at a dizzy height, spans a wide stream, in a better way than any previous structure, and it does it because of some particular thing invented and patented by its deviser. Calling his attention to the many points invented by others, each and all of which he admits to be indispensable, would we even dare to hint to him that, because he did not invent every one of them, he had therefore no right to patent that crowning feature which sprang from his own brain? No, friend Root! Your sweet cider, so gradually becoming acid that no one can designate the precise time when it soured upon him, does not seem to have much force in such a case. Every inventor has a right to use in the perfection of his own invention all that is the common property of the world. If he can not succeed without using things patented by others, both law and equity demand that he purchase a license to use them.

You say, "I would not stand side by side, and in company with the class of men (with *few* exceptions) who have been in years past taking money for *individual rights*, for all the gold in California." If it is the mere fact of taking money for individual rights which calls for such strong condemnation, why should you make *any* exceptions? And why should not your old friend be deemed unworthy to stand by your side, or to keep company with honorable men? I am sure that such a thought never entered your mind when you penned that bitter invective, although it is a logical inference from it. Then you are willing to admit, that the selling of individual rights is not *in itself a crime*. What you meant (and no doubt would have said, if you had been in a more judicial mood, so that you could have felt that it is the sacred duty of an editor not to allow himself to be betrayed by the facilities of a shorthand writer ever at his elbow, to take down his incautious utterances), what you meant, I repeat, was that you would not for untold riches consent to fellowship with the humbugs and swindlers who for these many years have been shown in the columns of GLEANINGS as selling pretended or worthless rights, to defraud the unwary. I am happy to believe that it is not the simple fact of an inventor selling individual rights, but the character of the men who have used this plan for such dishonest purposes, that led you to make such unguarded utterances. You assent to this statement of your position, and at last we can meet on some common ground; and I, who have probably been most wronged by the kind of men you mean to denounce, am glad to bear testimony that, for lo these many years, however mistaken you have been on some points, GLEANINGS has shown as a *beneficent beacon-light* to warn all bee-keepers against that race of individual-right dealers who have shown neither honesty nor decency in their dealings with the public. I am even sanguine enough to think that there is a way by which all fair-minded bee-keepers can unite, not only against fraudulent but *unwise* ways of selling bee-patents, and yet not concede a single material point of their honest convictions. Let me express the hope that, in the next issue of GLEANINGS, I may be able, by pointing it out, to pour oil upon our long-troubled bee-waters.

I close now by calling your attention to a fact that you seem to have entirely overlooked; viz., that, from the first issue of his patent, our friend Heddon has always sold hives without requiring purchasers to buy an individual right.

Your sincere friend,— L. L. LANGSTROTH.

Dayton, Ohio, June 8, 1888.

BEE-STINGS.

WHAT BECOMES OF THE PART REMAINING IN THE FLESH AFTER THE TOP IS BROKEN OFF?

I AM requested by a subscriber to GLEANINGS to explain how the bee-sting is removed from one's skin when broken off in the act of stinging. He suggests that, if it does not work out, it must be absorbed by the system; in which case he thinks that some bee-keepers must be largely composed of stings.

The skin consists of two layers—the outer scarf skin, or cuticle, also called epidermis, and the inner true skin, or corium, also called *cutis vera.* The outer skin is made up of what is known as scaly, or pavement epithelium; that is, it consists of innumerable minute overlapping scales. The inner scales contain pigment in their substance, and thus the color of skin. The albino has no pigment, and hence his skin is transparent, and looks pinkish, as we look right through and see minute blood-vessels filled with blood. The inner skin consists of an outer part, which, like the cuticle, has no nerves, and so is not sensitive to pain or touch. This is made up of white fibrous tissue and small involuntary muscles. These muscles contract if the skin is chilled, and drawing the skin away from about the hairs forms the well-known "goose flesh." Beneath this layer, which is known as the reticulum, because of its intercrossing fibers, is the papillary layer. This is the very inner part of the skin. It takes its name from the fact that little teat-like processes—papillæ—push up against the outer part of the skin. The ridges seen on the inside of our hands are but the elevations of these papillæ. Into these papillæ from beneath come nerves and blood-vessels. Thus from here comes all nourishment to the outer skin; and here is the sensitive part of the skin. Thus, a bee to hurt us must push its sting through the cuticle and reticulated part of the corium till it pierces the papillæ, where the blood receives the poison, and the nerves twinge with its venom.

Now, as we understood the anatomy of the skin we can see how the sting, if broken off in the skin, is loosened and liberated. The scaly, or outer skin, is constantly being worn off. When we bathe, the water often is clouded with these minute scales. The snake sheds its scales once a year; but we are doing it all the time. As these scales are constantly wearing off, any minute portion of sting which is held in them is also worn off and separated from the body. Even if a small portion of a sting is caught by the reticulum, the part would probably suppurate and loosen the sting, as is done with slivers that enter and are caught and held in the skin. We thus see that a bee-keeper is not made up of stings, by any means.

In case of porcupine quills, which are barbed like a bee's sting, they are thrust through into the muscle, so that every move of the muscle pushes them; and as they can not go back, they are pushed on. Thus a porcupine quill may pass some distance through the unlucky animal which has caught them in its tissues. A. J. COOK.

Agricultural College, Mich.

There, old friend, you have given me a thought I never got before; but I might have got it just as well as not. From childhood I have been afflicted with dandruff on my head—so much so that I do not dare to scratch my head, even when I am in a brown study; that is, when Mrs. Root is around; for if I do she has got to get the clothes-brush and give me a regular currying-down, especially if I have my Sunday clothes on. Washing my head with great energy (borax and Ivory soap being used along with the energy) helps the matter greatly; but before Saturday night the white bran will begin again to rattle down over my clothes, if I scratch my head very much. Well, in very hot weather, when I perspire greatly, I have noticed that these scales can be brushed off from other portions of my body than my head. And now comes a point I did not understand before. It is this: Whenever I bathe, the water in the bathtub is covered with these white scales; and when the water is drawn off from the tub, the sediment collects around the sides of the tub, indicating high-water mark unless I take pains to scrub it off as the water lowers. If I do not, my wife will scrub up the bathtub after me, and I do not want, especially in my old age, to add to the burden of my wife's household duties. Well, this accumulation that is coming off so constantly from my body is, as you tell it, the outside skin being washed away. Now, I am peculiar in this respect. My skin is wearing away so rapidly that it is always very white (*when the dirt is off*). I remember, when I was a young man even the girls used to envy me my white skin. I never got tanned or freckled—at least, not very much; but I do get sunburnt, I tell you. A great many times I have felt bad about this dandruff trouble; but if it simply indicates that it is because God is making me over new all the while, I will try to think it is not any thing wrong. Perhaps, Professor, you can tell us something about dandruff, if there is any remedy, since you have got so near the dandruff question. I suppose you know how many patent hair restoratives there are that claim to cure dandruff.—Now in regard to bee-stings: I have sometimes been afraid that old bee-keepers do get full of stings. We now know it is not so, and therefore there is no excuse for their being cross and sharp—no, not even at bee-conventions.

RAMBLE NO. 2.

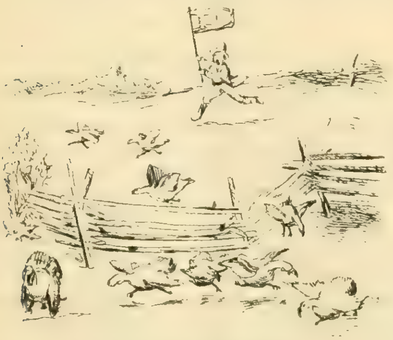
ABOUT ANOTHER PROGRESSIVE BEE-MAN, ETC.

THE 4th of August found myself and President Pierce early on our journey. Just as soon as we had taken our seats, side by side in the carriage, a peculiar feeling suddenly suffused itself over me. I thought I had grown about six inches, or that the president's portion of the seat had settled that much; for when walking around together and talking, I felt somewhat overshadowed, as the president, standing up, is over six feet tall; but sitting down he is no greater physically than any ordinary bee-man. As usual we couldn't agree as to whether the fault was in my body or his legs. But let me whisper in your ear, it was his unmercifully long legs.

A traveler pursuing a northerly course through Saratoga County, following the R. & S. R. R., will observe that the soil is of a sandy nature, and unproductive. Our course led us some distance east from the railroad; and to a lover of natural scenery this portion of the county would prove a disappointment, for it can be truthfully termed monotonous. Sandy plains stretch out on every side, broken occasionally by a tract of pine timber or a barren hillock, where the sand drifts into heaps like snow. Corn planted upon this soil averages from six inches to two feet in height. White beans have a hard struggle to exist. Potatoes grow to the size of hickory-nuts. Saratoga chips are mostly made from Washington County potatoes. Running blackberries seem to be a thriving crop. But this excellent berry is made gritty here by sand. Strawberries are also raised to some extent, but they are called by the degenerate name of "Sandberries," and are sold at a low price. Buckwheat is a thriving crop, but there are some thorns in the raising of this rose of the sand plains. Many times a farmer will look over his broad acres as he lingers at his door while the twilight shades are deepening, and perchance speculate on the fine even growth of three inches in height of his choice field of buckwheat. But in the morning a magic change has taken place. The wind and drifting sand has completely covered it, and there is nothing but a barren sandy plain.

After a few miles of laborious driving we arrived at the residence, large steam sawmill, and apiary of Mr. S. Ruggles. One would suppose that a live beeman could scarcely get a living in a locality where only buckwheat honey can be raised; but thousands of acres of buckwheat make thousands of pounds of honey, and it finds a ready sale in Albany and adjacent cities.

The first thing that attracted our attention upon arriving at the residence was a person rushing across the fields, waving a flag, and shouting like one possessed. We heard a low, rumbling, ominous sound, and began to think of cyclones. Just at this critical moment the president got on his feet, and those—those "trowsers" of his enabled him to look over all intervening objects. "Yes," said he, "it's not only a cyclone but a turkey blizzard;" and they swung in, in fine style, with the flagman close behind, who proved to be Mr. Ruggles himself. He considered turkeys a "tarnal bother," as the women-folks kept him running after them all the time.



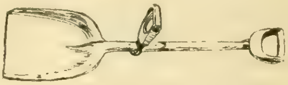
A "TARNAL BOTHER."

Mr. R., not feeling himself in proper habiliments to meet so distinguished a person as Pres. Pierce, retired to the house, and in about half an hour put in an appearance, shaved and dressed for the occasion.

We found Mr. R. to be a progressive bee-man. In two years he had progressed from 175 to 20 colonies. All who are posted in bee-lore will not be surprised at this rapid progress. It has been done time and again, but you hardly ever hear a man boast of it, and Mr. R. did not. In fact, he preferred to talk sawmill; and another friend of mine who progressed from 140 to 10 would persist in talking horse when I wanted to talk bees. Still another, when I talked bees to him, he talked onions. There is terrible perversity in the human race.

Mr. R. had a very handy honey-house, also a wintering repository. He manufactured his own supplies, and had a good trade with his neighbors. He uses the nailed section, and cut comb from the brood-chamber to supply the sections with starters. He had a Root foundation mill, but couldn't make it work. We wished to see his extractor, but he lent it a year ago and it had not been returned. He characterized his neighbors as "awful lawless." A 30-lb. crate of comb honey was left standing in the mill a few minutes, and neighbors carried away all but one pound. Mr. R. should not complain, as his neighbors are very considerate.

We soon got around to the sawmill again, and this time shovels and scoops were the theme of conversation. Mr. R. showed us a device of his own invention, to be attached to a scoop near the hand. This adjustable handle enables a person to get a firm hold, and at the same time prevents the hand from being soiled in scooping coal or sawdust.



RUGGLES' SCOOP-SHOVEL.

But time was on the wing; and, having a long drive before us, we bade Bro. R. farewell, and set our faces toward renowned Saratoga Springs.

RAMBLER.

To be continued.

CLOSE SPACING NOT DETRIMENTAL.

FRIEND L. C. WHITING GIVES US SOME IMPORTANT FACTS IN THE MATTER.

I SEE that the editor and Dr. C. C. Miller are having some talk about the distance that hives should be from each other. When I commenced in the bee-business I was very much afraid that some bees would get lost and go to the wrong hive, so I set the swarms eight feet apart. When the bees increased I set a swarm between each two of the old ones, and kept doing so from year to year until the hives are but four inches apart, and I found no more trouble than when they were eight feet apart. I learned, when I came to Italianize, that the strong swarms would attract bees from the weaker swarms around them during the flow of honey, but this straggling ceased as soon as the flow was over. The bees were all in the apiary somewhere, and I can see no objection to it unless your bees become diseased, and then it is a very serious trouble. I don't think that ten or even one hundred feet would make them secure. You may place a large apiary in an open field, and the swarms nearest to the honey-flow will get more than their share of bees. It may be one side to-day, and the other side to-morrow. For convenience in handling, eight inches suits me better than eight feet.

We don't know how a bee locates his home, but we know that you may have a row of hives all alike if you choose. You move one of these hives four inches to one side, and the bees will alight just where they used to, and frequently will rise in the air again to see what the trouble is. Bee-keepers have to learn to save labor, and the further apart your hives are, the more work it is to get your honey together or to look after the bees.

There has been a great lot of bees here where they were unprotected. Some are swarming out for want of honey. Bees well protected wintered well. We lost none. L. C. WHITING.

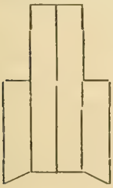
East Saginaw, Mich., May 22.

Friend W., you may be right about it, but I am sure I should very much dislike to have my hives stand as close together as you mention. I know you are excellent authority, and have had years of experience. I have noticed what you say, that strong swarms will often attract others, especially when the young bees are having their play-spell in the afternoon. When we first got the Italians I was exceedingly worried to see a lot of the yellow chaps, drawn by the roar of some powerful colony, get over to the wrong hive and start in as coolly as though it was their own home. I supposed they would all be turned out, or stung to death forthwith; but, as you say, it never seemed to do any harm, further than robbing weak stocks that need every bit of young blood. Now, I supposed this state of affairs was very much lessened by putting the hives six or eight feet apart. I know it is more labor, and takes more ground to have each hive so you can walk all around it; but I decided, years ago, that this was the way I wanted them, no matter what it cost. I am very glad indeed to hear you say you have lost no bees. When our old veterans succeed in getting rid of foul brood, and in getting ahead of our wintering losses of a few years ago, the younger ones can begin to take courage. Your statement, that bees well protected winter well, carries a heavy moral with it.

HOW TO EMPTY THE HEDDON CRATE.

AND SOME OTHER SENSIBLE POINTS.

THIS question remains unanswered on page 396. As I remember Mr. Heddon's directions, take a block long enough and wide enough to barely go easily through the super; that is, if your super is 12⅛ inches wide inside, and you use 4¼ sections, your block will be about 12 inches long, and something less than 4 inches wide, for the tins in the bottom of the super make the width less. The bottom of the block that rests upon the sections must not be entirely flat, but slightly concave throughout its entire length, so that only the outside edges shall rest upon the sections. This block, or "follower," I made by nailing together four pieces of common board, a transverse section of which is here shown. Then invert the super, and let the two ends rest on supports so that there shall be a clear space of 4¼ inches or more under the super. Placing the "follower" upon one row of sections, one or more smart raps with a hammer or mallet will leave the sections lying free.



This plan worked very well with me when the sections were fresh from the hive. "But after they had remained in the storeroom for some time" (I quote from "A Year Among the Bees"), "especially in cool weather, I broke too many sections in taking out, as a result of the necessary fall of some four inches. Moreover, it would sometimes happen that, on inverting the super, the sections would drop out of their own accord. So, before inverting, I laid a board upon the super, then inverted the two together, and so arranged that the sections, when pushed by the block, or follower, could not fall more than an inch or so. When all four of the rows of sections had been started to the extent of an inch or so, I placed upon them a quadruple follower, made by nailing a board across four single followers. The sections, having been already started, would come out without much force; so, placing my chin upon the top of the quadruple follower, I pulled the super off the sections, and then lifted away super and follower together, leaving the sections all clear. It was not a very graceful performance, but it was safe and effective."

LET US CALL THINGS BY THEIR RIGHT NAMES.

I called the Heddon super, above, a "crate," because I copied. But it is not a crate at all—not according to Webster, nor, I think, according to common usage, although it has been too common a usage among bee-keepers. The old word super is correct for any receptacle for surplus placed over the hive. The word *department* is quite often erroneously used among bee-keepers for *apartment*. For instance, "brood-department" is often used, and is almost never if ever correct. *He, his,* and *him*, is frequently used in speaking of a worker-bee. It is never correct. *It* may do, but should we not be accustomed at all times to say *she?*

HOW TO MAKE A DUMMY.

The question is not answered on page 396. A good way, and perhaps the most common way, is to take an ordinary pine board, and cut it the size of a brood-frame and nail on it a flat top-bar. This will fill just the space occupied by a brood-frame. I like better, however, to have the board resawed, making two out of one, each one being about three-eighths of an inch in thickness. With these thinner dummies it is easier to adjust to a varying space; and if several are to be used, the hive will be lighter to lift, for four of the thin ones will fill the same space as three thick ones, and weigh only two-thirds as much.

AGE OF BROOD-COMBS.

On page 396, friend Root, you say, "We should never destroy them simply because they are old." I have always thought so. A little while ago a writer in the *Ladies' Home Journal* strongly advised melting up all combs after they were two years old. I thought she didn't know what she was talking about; but a few days later the *British Bee Journal* came, and advised renewing combs after, if I remember rightly, some five or six years' use, instancing a case of diminutive workers raised in old combs. When such an authority as Mr. Cowan takes this ground, perhaps it would be wise for us to reconsider the question.

MELTING OLD COMBS.

I lately saw somewhere what I think is a good idea. In melting old combs, some of the wax is absorbed by the cocoons. To avoid this, soak the combs in water for some time before melting.

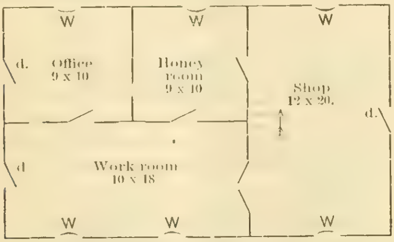
Marengo, Ill. C. C. MILLER.

Friend M., I presume you are right in saying we should use the pronoun *her* when applied to the worker-bee; but I think we might also, with almost if not equal propriety, use the pronoun *it*, on the ground that the insect is of neither sex; and finally I do not know how we shall go about it to make a change, even if we tried ever so hard. When people once get started on certain words or phrases, it is next to impossible to get them to change over, or, if done at all, it must be done by slow degrees.—Your thin dummy is, so far as I can see, exactly what we advertise in our price list as a plain division-board.—In regard to removing combs, I do not know that I have ever seen any so old that it made the workers diminutive; but I have seen combs so old and heavy that I preferred to melt them up into wax, to be replaced by frames with our reversible corners, filled with wired foundation. I have handled the reversible-cornered frames, somewhat, this spring, and I like the wired ends so much better than the metal corners made of sheet tin that I certainly should prefer to pay the difference for my own use. When I say *I*, I mean A. I. Root—not *we* or *us*, although all the boys who work in the apiary agree with me in this matter.

J. H. LARRABEE'S PROPOSED SHOP, BEE-HOUSE, ETC.

BEFORE BUILDING IT OF STONES AND TIMBER, HOWEVER, HE STARTS IT ON PAPER.

FRIEND ROOT:—I am thinking of building a honey-house and work-shop this fall, and I should like to ask you and the readers of GLEANINGS what you think of the following plan? I am to use it in the care of an apiary of from 100 to 150 colonies of bees. The whole building is 20x30, with 13-ft. posts.



The shop will contain my foot-power saw, a bench and tools, and a stove. It will probably be littered with shavings, and in this room I will try to keep the most of the dirt. The work-room will be used for putting together sections, gluing in fdn., making fdn., scraping propolis from sections, crating honey, etc., and will have a handy place for the smoker, queen-cages, and all the nick-nacks. It will be connected with the shop by a wide door, so that I can warm it all or use the doorway in sawing long boards.

As the honey is freed from bees it will be stored away in the honey-room, which will be ceiled extra tight, until prepared for market. The office will contain my desk, hooks for coats, and all those things which would look out of place in the work-room, or get dirty in the shop. The upper story will be used for storage of hives, and all tools when not in use. The honey-room, when filled as full as practicable, will hold 10,000 or 12,000 lbs. of comb honey.

I should like you to find fault with the plan, as a little care in the selection of a plan now may save me much vexation by and by.

The season is very backward, especially fruit-bloom. We must, I am afraid, be contented this year with a small crop of honey in this State.

J. H. LARRABEE.

Larrabee's Point, Vt., May 21, 1888.

Your idea is certainly a good one—especially that part of it where you want to submit it to the bee-men, to criticise and find fault with.

IS IT HONEY OR POLLEN?

MRS. CHADDOCK IS WATCHING THE BEES ON THE BLACK HAW AND BARBERRY.

SINCE the apple-bloom faded, the bees have been roaring around a black haw that stands in our dooryard, and on the two barberry-bushes in the apiary. I think they get nothing but pollen from the black haw. They flirt around from one blossom to another, just as they did on the hard maple, then go off and twist their legs awhile and back to fumbling the stamens about. After watching them work for awhile on the haw, I went and stood by one of the barberry-bushes. Here I saw very different actions. The bee would run its tongue down into the flower, which never opens out fully, and sweep it slowly around the immense pistil, staying at one blossom about long enough for me to count seven, then to another and another. This morning was cool—cool enough for the men to wear their overcoats at work in the fields, and the black haw was deserted—not a single bee about it anywhere. But when I went to the barberry-bushes I found a few bees gathering the nectar. I watched one bee that sucked out over a hundred blossoms, stopping to twist her legs only once in the meantime. She had some very small pellets of pollen on her legs. I noticed that, when she returned to a blossom that she had already emptied, she made short work of it, sometimes not even running her tongue in, but merely giving the flower a rubbing bump with her nose, and passing on to the next. Had she left a scent there that she recognized as soon as she came close enough? Now, is the barberry a flower that secretes honey on cool days, or was that nectar secreted last night when it was not quite so cool? Under the magnifier the black haw shows plenty of pollen, but no honey—not the tiniest drop, while the flower of barberry has not much pollen, and such queer little ear-flap arrangements these anthers are! At the base of each stamen there are two kidney-shaped, orange-colored bodies (the blossoms are yellow), and around and among these bodies I find most of the nectar. It is not visible to the naked eye, but glistens under the magnifier, and (this seems strange, does it not?) a drop of nectar, too small to be seen by the naked eye, can be tasted. I have tasted many of these, and the sweet is very noticeable.

In examining different flowers there is one thing that puzzles me; that is, why the haw and the barberry (especially the barberry) should be provided with such large pistils, while the sugar maple and others have such insignificant ones. And the insignificant ones are away down deep out of sight, while the haw and barberry stand boldly out of the blossom. Has any one noticed that flowers are not so fragrant on cool as they are on warm sunny days? If anybody doubts this statement, go, smell, and see. I suppose that the perfume is not secreted (?) on cool days, for the same reason that nectar is not—atmospheric conditions not being right. So, now, if a rose by any other name will smell as sweet, it won't smell as sweet some other day when the weather is cool. By the way, there is no more beautiful ornamental shrub, than that same black haw. It has a beautifully rounded top, and is loaded with blossoms every spring; then in the fall when the frost turns the leaves, they are a bright crimson, and stay that way for two or three weeks; then we have the ripe haws to look at and to eat—three beauties and one benefit in one year! what more can we ask of any tree?

But the barberry is not beautiful, and it is like what the stuttering young man said of the locust limbs when he was helping Mr. Chaddock pile up brush: "Th'-th'-they've g-g-go-go-got sti sti-stic-stic stickers on'em," and are very unpleasant bushes to handle. I know, for nearly all my swarms of bees alight on them; and two years ago, when my bees had that crazy swarming spell, and would not stay hived, I tried dipping them off these barberry-limbs into buckets to carry them away to new places, so that they would consider themselved swarmed. I have read of barberry hedges. Who has them? and do they bloom well when trimmed into a hedge? do the bees roar on them? If the barberry is any thing of a honey-plant, it must be useful, as it blooms immediately after apple-blossoms fail.

Vermont, Ill. MAHALA B. CHADDOCK.

REMEDIES FOR BEE-STINGS.

HAS THE CREATOR GRANTED THE DUMB BRUTES A KNOWLEDGE OF THE MEDICAL PROPERTIES OF HERBS?

ON page 826, 1887, you ask, "How did anybody happen to think of plantain?" Let me tell you how an aunt of mine happened to think of it. Being a very close observer, she one day saw a very large spider and a small toad engaged in a pitched battle; and as the battle went on, the toad was frequently bitten by the spider; and as often as bitten it went immediately to some plantain standing near by and bit some of the leaves. My aunt, having her curiosity aroused, and wondering what would be the effect if the toad could not get the plantain, removed it entirely. The battle went on, the toad was bitten again, and again repaired to the place, where it had so often found the plantain. Being unable to find the plantain, the toad seemed confused, and died in a few minutes, without even trying to return to the conflict.

P. S.—After writing the above I found the inclosed sketch, and cut it out for you. S. F. AVERY.

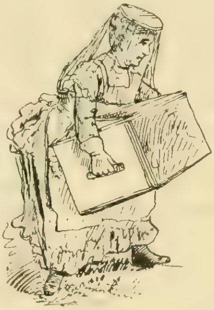
W. Taghkanic, Col. Co., N. Y.

Friend A., I am very much obliged indeed for the information you furnish; but I still think that the toad ate the plantain by accident, and that it had nothing to do whatever with providing an antidote against the venom of the spider. I grant that it is a little mysterious that the toad should die so suddenly; but still I can not think that the plantain had any thing whatever to do with it. In the first place, if I am correct, Prof. Cook has told us that spiders are not venomous. I know that a great many good people will lift up their hands in protest when I say this; but I think that he and other entomologists will tell us that this whole matter of poison from spider-bites is a mistake. Another thing: No antidote to poison can work so quickly. The plantain must be swallowed and at least partially digested, and the antidote must get into the circulation before it can counteract the effects of the bite. When people swallow something that is poisonous, *swallowing* an antidote may give immediate relief. When a person or animal is bitten by a rattlesnake, swallowing another poison, such as alcohol or whisky, might soon get the liquid into the circulation of the blood, so as to prove an antidote; but even this I very much doubt. I think that no one has yet proved conclusively that whisky is good for snake-bites or bee-stings. Finally, although I have great faith in the kindness of an all-wise Creator, I do not believe he has endowed dumb brutes with an instinct that prompts them to eat certain plants when they are sick or have been poisoned. Of course, certain kinds of food are prompted by nature, when we have been suffering from ill health. My good friend Neighbor H. has a way of saying that the best medicine in the world for a sick horse is grass; and I said this morning at breakfast, that the best medicine for a sick man or woman is strawberries. The grass and the strawberries are both provided by an all-wise Creator; but I do not think that it follows that the *toad* instinctively ate *plantain* after he was poisoned.

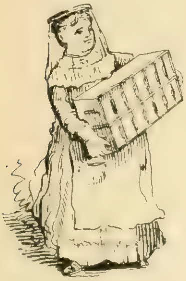
I will state to our readers, that the clipping alluded to in the postscript is a piece from some illustrated paper containing the picture of a toad and spider, and the account given of it is substantially the same as given above. From this I infer that this story of toads eating plantain when they are bitten by spiders has got to be a sort of legend which has been handed down. Perhaps you think I am taking considerable space for discussing a simple matter; but, dear friends, it is a serious matter indeed to see so many people accept as truth things which are nothing but superstitions which have been handed down through ages of ignorance. The time has come when every fact should be carefully scrutinized by the sharp, keen light of modern science and scientific investigation. Will Prof. Cook and other entomologists second what I have said, if I am right, or correct me if I am wrong? The juice of the plantain is not pungent or powerful, nor is it intoxicating; and, so far as I can discover, it has no such powerful effect on the system as any plant *must* have to exert its influence by simply chewing the leaves. I think we might cook them up for greens, and eat a hearty meal of them without discovering any effect whatever, any more than we should from dandelions or spinach.

IS BEE-KEEPING AN OCCUPATION ADAPTED TO WOMEN?

SOME OF THE DIFFICULTIES SUGGESTED.

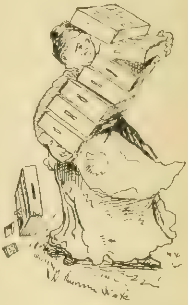


LIFTING HIVES FOR FUN.



MORE LIFTING FOR FUN.

“WHAT do you want to lift your bee-hives for, I should like to know?” Why, Mr. Root, I lift my bee hives and carry them around *just for fun*. There is no need of it—not a particle; but I have a way of longing and thirsting for exercise, so I go out and carry the bee-hives from one end of the row to the other, then back again. It's *loads* of fun. Then I let on that I want to unite two colonies, and it seems to be necessary to have the two hives side by side, or one on top of the other, and I take the hive up as gently as I can, and carry it to where I want it. Then when the bees swarm I catch the queen, put her under a goblet on a plate, set her in the shade of the hive, turn the old hive around so the entrance is in another direction, put the now empty hive where the old one used to be, cover the old one with a sheet, let the new swarm come back and run in, let the queen go in with them, then uncover the old hive. In eight days I carry that old hive fifteen or twenty feet away; sometimes a man or a boy or a hired hand helps me. Oftener I do it alone, because at the time of day when most bees are flying, our men are away in the fields at work, and they are always cross when the bees sting them, and the bees always sting them, and I do not like to trouble them about it too much. Then I lift the honey and carry it to the house and round the house to the sitting-room door, and put it in there, because it is the only place where the bees will not get to it and carry it away. I have some of your racks with glass sides, holding 27 1-lb. sections; and when they are full they weigh at least 30 lbs. I take off the crate, at one swoop. I can not bother to gouge the sections loose, and take out ten or twenty of them to carry in at once, and then come back for the rest. Besides, where would the robbers be? Most of my honey-boxes are some that I had made to fit the Gallup hives. They lack about one inch of fitting the Simplicity hive, but I put some of the bee-cloth, covered with propolis, along there, and cover with a strip of oil cloth to keep out the rain, and they do very well. These honey-boxes, when filled, hold 40 lbs., more or less, and I do not loosen the sections if I can help it, till I get them to market. They have very little propolis on them, and need little scraping. These 40-lb. boxes of honey I carry about a good deal during a good honey season. If one colony does not seem to be filling them up to suit me, I change them about from one hive to another. Of course, they do not weigh 40 lbs. at all times. So altogether I find there is considerable lifting to do, besides carrying the hives about *just for fun*. You say, “If you do not like hard work, lift one at a time.” But I tell you that I just “hone” for exercise; so let me carry out a dozen or so of those crates at one time, won't you?



STILL LIFTING, BUT NOT SO FUNNY.

“Set the cases on a wheelbarrow, etc.” Mr. Root, we never had a wheelbarrow in our family, and I doubt if we ever shall. Reason, too many wants and too few dollars. “When the honey is to be loaded, place the plank on the doorstep, with the other end on the wagon, etc.” The wagon does not come near enough, and I have not any plank; and after the bees are all out of the honey-boxes it is no trouble to get somebody to carry them out to the wagon, if the men are about.

Vermont, Ill. MAHALA B. CHADDOCK.

Very good, Mrs. C.; but your logic and pictures have so confused me that I almost forget which is my side of the argument and which is yours. And, by the way, I hardly know, either, whether your excellent pictures have a bearing on one side of the discussion or the other—perhaps both. At any rate, I think you may thank God for your muscular strength and good health to enable you to thus lift hives, honey, etc., around as you may happen to want them. Suppose, now, you are in feeble health, and yet want to keep bees, would not the wheelbarrow be a good thing? I am inclined to think, that, even as it is, you will eventually find it a good thing yourself, especially if you happen to succeed in getting an immense crop of honey. I should not wonder, too, if you found it necessary to get a plank as well as a wheelbarrow. I am well aware that some people think they can not take care of a natural swarm without carrying the parent hive to another location. I have tried lifting hives about in the way you mention, and I have also tried having each hive that is to contain a new swarm all in readiness before the swarm came out; and I am decidedly in favor of letting the hives stand in their permanent abiding-place, summer and winter, year after year, carrying the swarms to the hives, instead of carrying the hives to the swarms; and when we sell bees we lift out the combs and put them in a light shipping-box or in a nice new hive, as our customer may desire, leaving a great heavy chaff hive, that made the bees comfortable and secure both winter and summer, right on its permanent stand, where it has always stood.

SHALL WE SUPERSEDE OLD QUEENS OURSELVES?

FRIEND POPPLETON TELLS US WHY WE SHOULD.

MY attention has been called to the replies given some time ago to this question in the Question-Box department of one of our bee-journals. Seven out of twenty who furnished replies gave no decided opinion either way, while the other thirteen all replied in the negative. The principal reason given, when any was given for the opinions, was that the bees knew when to do this work better than we did, while one said it cost less to let the bees do the work themselves; and another said that superseding by rule would often depose queens of great value. As my opinions and practice have been directly opposite to those given by the thirteen, I will try to give my reasons for the same, as the time of year is near at hand when such work should be done, if done at all.

The assertion, that bees know better when to do this work than we do, is in a certain sense true, and in other ways not true; for while they frequently supersede their queens before the apiarist can possibly detect any failure of the queen, or, at least, before he would detect it in the ordinary routine of work, they frequently retain failing queens, if allowed to do so, for months after they are nearly worthless; but all are agreed that such queens should be replaced by the bee-keeper. The fact that, in following any rule of superseding on account of age, we will sometimes destroy queens good for yet another season, is also true; but this is only one item to be considered in making a decision of what is best to do, and not the conclusive reason that the one who made it seemed to consider it was.

The entire question is one simply of profit and loss; that is, a question of which way costs the least. On the one hand we have the expense of furnishing the colonies with the young queens, which any one can easily determine for himself, and to this must be added the value of an occasional queen that would be destroyed that would be useful for yet another season. This last item is much less than many suppose it to be, and less than I supposed it was until after I had closely observed the matter for several years. On the other hand, we have a material reduction of our honey crop, resulting from the failure of many old queens at a critical time of year. In our Northern States the time of year when such failure will lessen the amount of honey stored by the colony extends from late in the fall until about July 1st next; and it is practically impossible to detect this failure in time to entirely prevent the loss of honey. The bees do very little superseding of their own accord at this season of the year; in fact, practically none at all of queens that are commencing to fail, but not yet entirely so. At least nine-tenths of the superseding in my apiary in Northern Iowa was done in the months of July and August.

To aid me in getting at the real facts in this matter as well as in others, I have always kept a complete record of all my queens, and have practiced clipping their wings. This last enabled me to keep a correct record of each queen, without any guesswork. I soon noticed that those colonies whose queen was in her fourth season nearly always gave me less than the average amount of honey, and enough less, too, to much more than pay for the expenses of having given them young queens the fall before, and allow largely for the value of such good queens as might be killed while doing so. I never killed all of my third-season queens, although I think it would have paid to do so; but I always kept a few of the best ones, so I have had both kinds of queens to compare results from for a number of years.

A colony which is very strong at the commencement of the honey-flow, will store more honey according to its numbers than will a medium strong one, and only queens in prime vigor can get their colonies strong by the time white clover commences to yield; and even if old and yet good, they are rarely ever as vigorous as are younger ones; and my main reliance for surplus honey was always on those colonies having queens in their second or third seasons.

It is quite a long while from the time brood-rearing ceases in the fall and the first of July following; and any failure of the queen during this time, even if only partial, seriously diminishes the number of mature bees the hive will contain during the honey-harvest, and no failure of a queen can take place during this time that can be noticed by the apiarist, soon enough to prevent a serious reduction of the amount of brood that will be raised in time for the harvest.

A much larger production of colonies having old queens will be weak in the spring than of those having younger queens; and as requeening can be done so much cheaper and better in the fall than in the spring, I prefer to do it then, even if half the queens I destroy would be good for yet another year.

Many of our best apiarists—Doolittle, Hutchinson, and others, recommend the contraction system dur-swarming; but all seem to agree that swarms having old queens seem much more inclined to build drone comb than do others.

In speaking of old queens, I mean those that have done duty for three seasons, including the one in which they were raised. In rare cases I have known queens to do duty the fifth season; but a very large proportion will not do satisfactory work during their fourth season, a much larger proportion than many suppose is the case, unless they have specially observed this point for a number of years.

As already said, the question is one of relative profit and loss. On one hand we have the expense of the young queens, and the value of the few good queens that will be destroyed; on the other, we have the very material shrinkage of the honey crop, the probable loss of some colonies, etc., and there is no question in my mind that the last items exceed the first ones many times over.

O. O. POPPLETON.

Apartado 278, Havana, Cuba, June 6, 1888.

Friend P., I have no doubt but that better results may be obtained by removing any queen not up to the standard, and giving the hive another. But how many of us have judgment enough to avoid making a bad matter worse? A great many times I have succeeded in improving matters by requeening; at other times I have damaged a colony a good deal, and failed in getting a queen much better than the old one. One important point is to have surplus queens on hand which we are sure of, which is a difficult matter of itself, unless we have them in nuclei, and used as needed. But, if we are correct, no queen can demonstrate what she is good for without a big colony of bees to help her. On this account some have maintained that, if we would put the poor queen into a large colony, she would become a good one, and vice versa. After a queen has been tested, however, for several months, we can tell pretty nearly whether she is up to the average or not. Our queens do not, as a rule, lay much beyond the second season.

AN INTERESTING LETTER FROM OUR JAMAICA CORRESPONDENT.

THE GOSPEL MINISTRY AND BEE-KEEPING A SUCCESSFUL COMBINATION.

FRIEND ROOT:—My little apiary has furnished me some honey and a great deal of pleasure during the past few months. The bloom of the orange, coffee, and mango has produced most of the honey to date. A severe drouth cut off the honey-flow for a time, but the bees are beginning to work again. The honey season will close here about July 1st, I am told.

The gospel ministry and bee culture combine well. The prudent minister will have his sermons for Sunday ready by Friday night. Saturday is not a good day to make calls, and the minister needs mental rest and bodily recreation preparatory to his important work on the Lord's day. All this he can get in the apiary. In my absence my wife cares for the bees; and when we are both absent the good neighbors look after "minister's" bees.

ARE BEES MORE PARTIAL TO A BLACK MAN?

Do bees attack black more readily than white objects? My servant William is black. He aids me in extracting, and gets about as he pleases. When the bees buzz about his face he rolls up the whites of his eyes, and grins until he displays two rows of ivory, reaching almost from ear to ear. He escapes without a sting. I get several, and I am not black either. My observations lead me to the opinion that bees, when disturbed, attack the first moving or strange object they see, without regard to color.

THE STINGLESS BEES OF THE ISLAND.

Not long since, when on the south side of the island, I found a stingless bee. If memory serves me rightly, Gosse, an English naturalist, classifies them as *Apis Trigona*. They generally build their nests in hollow trees, but sometimes they can be seen hanging from the branch of a tree in the form of a jug. They have yellow bands of fur, but are not as large nor as graceful in form as the Italian. When on the wing their hum is quite distinct from the black or Italian bee; and when sipping nectar they make a buzzing noise as if thrilled with joy.

I immediately began to search for a swarm, and, to my joy, I soon found one in a hollow tree. As I had no cutlass, and had but little time to spare, I could not investigate as I desired. I learned, however, that their nests are made of a substance resembling brown paper; their comb is irregular, and their honey is quite inferior to the honey of the black bee. The Spaniards call them "angelitos" (little angels) because they have no sting.

THE RED ANT A BEE-ENEMY.

We have a red ant here which is very destructive to bees. When full grown it is five-eighths of an inch long, has long legs, its movements are quick, and it is armed with a pair of powerful mandibles, and jaws containing six teeth on a side, three above and three below. They are shrewd in warfare; and when the enemy is the stronger, they delay an attack until reinforcements arrive, sometimes from a distance of forty rods. They are very fond of honey, and will fight like Spartans. When sufficiently strong to make an attack they will kill an ordinary swarm of bees in a single night. They live mostly in dry bamboo joints, but will live in old buildings, splits in trees, or any place where they are kept dry and are sufficiently secluded.

I read your article on small sections with interest. I have not the means at hand for experimenting, but why not press them from pasteboard? They make small boxes and pails very cheap, and why not make section boxes? J. W. JENKINS.

Providence, Jamaica, W. Indies.

Friend J., we are very glad indeed to get your report, and especially what you say in regard to the stingless bee. We have before been told that the stingless bee would be of no account, even if it could stand our winters, and your report seems to further corroborate it.—This matter of making section boxes of pasteboard has been often talked about; but at present, thin wood is so very much cheaper that we can not very well consider pasteboard. Another thing, I believe the bees would be more apt to injure the appearance of pasteboard.

FARM MACHINERY.

DISC HARROWS, TREAD-POWERS, SILO-CUTTERS, AND HAY-LOADERS.

FRIEND ROOT:—Do you remember, a year ago you walked across my boggy low plowed ground, and remarked, "You ought to have the Disc harrow for this"? Well, that led to the purchase of the harrow, and I believe it paid for itself in the one year. This year I got the "Clark Cut-away," and find that better than the Clark Disc. Here the discs are cut into, or broken, so the Cut-away harrow does most excellent work. I think it indispensable on any farm where sod is ever plowed. What a pleasure to work on plowed sod, and not tear any up! and what a pleasure to work on very tough sod, and fit it very quickly for the seed! I also bought a Morton tread-power last year. This works admirably, does all my grinding of feed and cutting of material for the silo; and, as I always have horses to use, it is very inexpensive. I have wondered why this tread-power would not be just the thing for bee-keepers. It can be put under shelter, and furnishes double the power that we can get from one or two horses, as the case may be, by sweep power. Now, these are so governed that they are entirely safe, and they are not hard for horses. I use colts on mine.

Since writing on the silo I have been asked by several what cutter to buy. I can only say that I have tried five, and have purchased the Smalley. This works admirably. My tread-power runs it easily. It cuts very fast, and has a carrier that will carry straight ahead, or to the right or left. Of the five that I have tried this is decidedly the best.

While upon this subject I wish to speak of the Keystone loader. I purchased one last year, and it is a great aid. It takes hay right from the winrow, or, in case it is very heavy, right from the swath. One man drives and two load, and it is surprising how quickly this machine puts a load on to a wagon. In these days of uncertain labor, such machines are a prize.

You ask in GLEANINGS about small silos and sweet corn. I have a friend who made very excellent silage in a hogshead. That answers your first question. Sweet corn would do admirably; but if you raised larger corn you would get more.

A. J. COOK.

Agricultural College, Mich., May 30, 1888.

I am greatly pleased, friend C., to find that the Disc harrow works on your boggy ground just about as I expected it would. I want to explain to our readers, that this piece of land had been for years a boggy swamp, with springs breaking out here and there. Prof. Cook consulted an engineer in regard to draining the bog. If I remember correctly, the engineer said it would cost a large amount of money—couldn't be done with satisfaction otherwise. Friend C., however, hadn't the money to spare, and he wanted to try his hand at doing it in a cheaper way. He therefore made one or two drains through the wettest portion, proposing to see what the effect would be before he laid out any more money on it. To his great surprise and pleasure, just as soon as the drains were opened, out went the water in short meter, and left the land in perfect condition for tillage. The result was exactly the same as in our swamp garden here at home. One single drain, right through the deepest and wettest portion, took all the water out of our way, and the whole expense was but trifling. Well, after the water was out of the way, the question with Prof. Cook was, how to chop up the unsightly bogs, and make the ground smooth and level. Almost any common harrow would have tumbled the bogs over and over, and tired out the team without accomplishing much. In such a place the Disc harrow proved to be just the thing.—I am very much obliged indeed to know that a larged-sized hogshead may be made to answer for a silo. This will enable others like myself to test the matter on a small scale before they decide to go to any great expense.

HELP IN THE APIARY.

HOW MANY DAYS' WORK ARE REQUIRED TO PROPERLY CARE FOR 100 COLONIES IN ONE YEAR?

IN answer to your request to bee-keepers as per GLEANINGS for June 1st, page 426, I will say that a man endowed with common energy, and working less than 150 days in the year, manages for us 6 apiaries, numbering about 400 colonies; that he finds time also to work at two other apiaries, one for himself and one for another party, and that he has some time to spare, although some of these apiaries are ten to twelve miles from ours, which is about in a central portion.

Of course, we give help to our apiarist at the time of extracting, for we raise, more especially, extracted honey. As we extract, on an average, 1250 lbs. per day, our crop, when amounting to above 20,000 lbs., requires 16 days work for two men and a boy, so the average number of days' work amounts to about 200 per year. Good results with so little work can not be attained unless the apiaries are organized for the purpose.

You know, probably, that we use very capacious hives, having adopted, after several years of careful comparison, the Quinby suspended-frame hives, enlarged to ten frames, and a partition board. As we enlarge the space just as soon as the crop begins, the number of our natural swarms does not exceed two or three per cent, our bees swarming only when they raise queens in the height of the honey season. To enlarge the room we add supers filled with half-frames, provided with combs. Before the invention of comb foundation we used to adjust in these half-frames all the drone combs removed from the brood-chamber. We have some of these which are 20 years old, and which have been emptied nearly every year since.

Having from 1200 to 1500 of these combs in each of our six apiaries, we place successively on each hive as many supers as necessary; our rule being never to extract, if possible, till the crop is at an end. In this way we often have three of these supers, weighing about 50 lbs. each, on some hives; yet our spring crop is short, coming to an end with the clover blossoms, for there are very few linden-trees in this part of Illinois.

When we extract, our man takes out the surplus combs and brushes the bees; another brings them to the extracting-room; another uncaps; a boy turns the machine, and places the empty combs back in the supers. After sundown they are replaced on the hives, to be dried by the bees.

As we do not extract from the brood-chamber, nine years out of ten our bees have a large quantity of good honey for winter, and are generally strong in the spring. We are convinced that, but for the capacity of our hives and the strength of our colonies after winter, our surplus crop would be light; since it ceases just when the linden blooms, and yields a crop for apiaries better situated.

Our surplus-boxes are left on the hives for the fall crop, emptied again if necessary, then given back again, to be removed late in the season; then they are housed securely away from mice, in cold rooms, where the frost kills the bee moths if any are in the combs.

The floor of the room in which the extracting is done is covered with painted cloth. The piles of surplus-boxes, in which the emptied combs are put back, are placed in tin pans made on purpose, and the men, while waiting for the sun to set, clean the room. By these means the work is far from being as dirty as you seem to suppose.

Like our good friend Grimm, we do not manage our bees intensively, convinced, as we are, that our course pays better than the intensive method adopted by most of our best bee-keepers.

Hamilton, Ill. CHAS. DADANT.

Friend D., I think that man of yours, alluded to in your first paragraph, must be an uncommonly good one; but there is a very great difference in people in this respect. One who has worked at farming and gardening, and has learned by experience how much it costs to try experiments, and invest in every new thing that comes along, has generally learned that, to make these things pay, we must not spend very much time in any kind of work that does not bring back an equivalent in dollars and cents. And I fear a good many of our beginners use more time and more money in caring for their bees than they need to. Your idea of returning combs after sundown is an excellent one, especially if there is no danger of robbing. I have seen a whole apiary crazy with excitement, as it were, because of a few combs carelessly carried out when all the bees were flying, said combs having just been extracted, and being in no way protected by a covering of bees to defend their contents, as combs ordinarily lifted from the hive are covered.

A VALUABLE REPORT FROM W. L. COGGSHALL.

MANAGING AN APIARY OF 80 COLONIES, AT AN EXPENSE OF ONLY 65 DAYS' WORK.

IN your foot-note on Geo. Grimm's article you ask whether any one manages 300 or 400 colonies with 300 days' work. I can say that I have, and have done even more. I keep a diary, so I can tell exactly how much work is done in each yard. I have one yard of 80 colonies, 10 miles away, and it requires two hours to go and two hours to come. I always have help enough to finish up the whole yard in one day. Three men would do all that is necessary in the yard in six or eight hours. I never move an extractor from one yard to another. I always have store cans and barrels ready. A building 12x16 feet can be put up for $25.00, and answers every purpose. We make our own extractors at a cost of about $10.00. They are stronger and firmer than any we can buy. They are a two-frame extractor. The frames hang in the same position that they do in the hive. There is store room for 250 lbs. under the reel. This is set high enough to put a pail in under the faucet. The honey then is emptied into a store-can and run right into a barrel. One can empty eight or ten barrels, 3500 lbs., in a day and put it in barrels.

Those 80 colonies gave me 500 lbs. of comb honey and 9500 lbs. of extracted, and there were 65 days' work done in that yard (aside from hauling the honey away), and that included packing for winter. The yard was increased to 125 colonies, and I wintered 118 of them. The bees are located 3 miles east of Cornell University, Ithaca, N. Y. I now have, in all, 420 colonies. W. L. COGGSHALL.

West Groton, N. Y., June 7, 1888.

Very good indeed, friend C. You have given us exactly the kind of facts and statistics that we wanted. Now, if you will tell us how much money the 500 lbs. of comb honey and the 9500 lbs. of extracted brought you, and what the 65 days of labor probably cost, or if you did it yourself, part of it, what it was worth, we could get a pretty straight statement of how much money there is in bee culture. May be it is a little out of order to say it right here; but the memory of your genial, pleasant face, especially when you gave us a brief talk at that Utica Convention, makes me feel glad I was there, when I think of it—not that you were the only one whose acquaintance gave me pleasure, but I tell you it was a real treat to meet with such a nice lot of York State boys as I did during that convention. Any such communication as the one above has an additional charm, because of the memory of those pleasant days; and that is one reason, brethren, why we ought to go to conventions. Don't you see it?

OPEN-SIDE SECTIONS.

OBJECTIONS TO THEM CONSIDERED.

ON page 408, May 15, I find the following editorial paragraph:

"We learn from the *Review* that Mr. J. H. Robertson has used 1000 open-side sections, and is thoroughly disgusted with them. He says the bees often connect their combs through the side openings. How is this, friend Foster, in your locality?" etc.

I did not reply to this before, because I did not see it until nearly 11 P. M. last night. I have to slight my reading during the busy season. As soon as I read the editorial in the *Review*, to which reference is made, I wrote to Mr. Robertson, requesting him to send me a sample open-side section, such as he used. I also asked several questions, such as, "What super was used? What kind of starters? What percentage of combs was extended through side openings?" etc., to which he very kindly responded.

The sample is the same as those received from Dr. Tinker; side openings are ½ inch wide, practically the same as my own.

The super used was the old Heddon super, with partitions removed, and slats on bottom to hold sections. A "follower" was used in one end, but there was *no side adjustment*. Mr. R. says:

> One of *the principal objections to them we found in handling them*—so many corners that they were always catching, and one section could not be lifted from a super, and returned, without usually taking the super to pieces and commencing over once more. This is the only instance where we could ever discover the trouble in getting in the last section; and with the open-side section there were 4 last sections.

The italics are my own. This is indeed a serious objection where the sections are crowded into a case that is just wide enough for them; but with a case that can be opened ½ inch wider, and closed up when filled, the difficulty is hardly noticed.

The starters were full sheets, fastened at top and bottom. I have had such starters sag to one side in the middle, but Mr. R. says he has no trouble that way. He did not say what per cent of combs was extended through the side openings, but says, "In 35 supers filled with open-side sections we never secured one perfect super of No. 1 comb honey."

I do not know that I have ever secured a "perfect" super of comb honey by any method, but I have never seen any combs extended through side openings. I can not think that "locality" has much to do with it, but I think a heavy honey-flow and crowded supers might. I never allow my supers to become crowded. There is not the necessity with open-side sections that there is without. I have never used very many sections with the openings more than ⅜ wide; and it may be that, where separators are not used, they should not be wider than that. With separators, I am positive that there will be no comb extended through openings ½ inch in width.

We are very glad to get this report from Mr.

Robertson, and we look anxiously for those from others. We want the truth, let it strike where it will. OLIVER FOSTER.

Mt. Vernon, Ia., June 6, 1888.

Thanks, friend F., but we should have been pleased to have friend Robertson's entire letter. By all means let us have opinions on both sides of this matter.

HEADS OF GRAIN

FROM DIFFERENT FIELDS.

WHAT THE GERMANS CALL LIQUID HONEY.

MRS. L. HARRISON says, in answering question No. 32 (is it advisable to change the name of extracted honey?): "The Germans call it free honey." I do not know who informed Mrs. H., but I know that the name "free honey" is never used in Germany for extracted honey. The extractor is called *slinging machine* (*schleuder-maschine*), and the honey "slung honey." This seems a better name than extracted honey, because it tells exactly in what manner the honey is taken from the combs. The word "extracted" is merely used for a process by which a high temperature, powerful pressure, or chemical influence is used to take a substance out of a mixture. L. STACHELHAUSEN.

Selma, Texas.

DRONES DIFFERENTLY MARKED, FROM A PURE QUEEN.

If the eggs that hatch drones are unfecundated, why is it that the drones from a pure Italian queen, mated to a black drone, are, some of them, black, and differently marked like the workers? Is the theory that they are as good as those from a purely mated queen true?

The prospect for honey here is very promising. I hope to give you a big report in the fall.

OPEN-SIDE SECTIONS.

My experience with the sections open all round, as Foster makes them, is that they are a success.

Granger, Texas, June 5, 1888. S. J. FOSTER.

The drones from a pure Italian queen are always pure. No real evidence has ever been produced that they are not. The facts you urge are nothing more than we should expect from drones. Drones from the same queens are not always marked alike. Some show broad yellow bands, and others scarcely any yellow at all. Both, however, so far as anybody knows, will produce pure bees if the queen is pure.

HOW FOUL BROOD WAS FINALLY CURED AT THE HOME OF THE HONEY-BEES; THE VALUE OF ANTISEPTICS.

I am glad indeed to find you announce this spring that foul brood is all gone, as it is a terrible scourge to one whose conscience will not allow him to sell bees or queens while it is around. Last year, ill health compelled me to take up bee-keeping as an occupation, and I had the misfortune to buy 25 colonies from a party then in Port Elgin, with the result that, during the season, I had to destroy or treat eight, and this season I am at it again What I write for now is to ask you if the treatment by which you succeeded is that described last fall in GLEANINGS, of uncapping and spraying the brood, etc., with carbolic acid. I should like to get down as near as possible to something definite in regard to the extent to which disinfectants are necessary, though I dare say that is where the great difficulty lies so far as unanimity of opinion is concerned. D. A. Jones claims that he has been unable to disinfect combs, and that the honey must be extracted and boiled, the combs melted down and the hive, etc., boiled, and, as you know, he is no mean authority; while Frank Cheshire doesn't remove any honey, but treats the brood and bees; he doesn't do any further disinfecting, while you, as a precautionary measure, I presume, spray the hive and quilt. How to reconcile these things I am at a loss. Have you any settled opinion regarding disinfection, and would you have any hesitation in interchanging frames, quilts, or hives, of the cured colonies with others. Most of my curing has been on the D. A. Jones plan, and I submit the hives, frames, and quilts, to a 15-minutes' ordeal of scorching steam in a tank made purposely. I set it on the stove, with about an inch of water in.

Galt, Ont., June 14, 1888. R. W. MCDONNELL.

The plan put forth, of uncapping and spraying with carbolic acid, was given only as an experiment. Further developments show that it does nothing more than prevent the spread of the disease, and this was so reported at the time. The plan on which we cured foul brood is essentially the same as D. A. Jones's. Every colony, after being treated according to his plan, was sprayed with a weak solution of carbolic acid, diluted 500 times in water. The acid, according to our experience, does not cure, but simply prevents the spread of the contagion to other colonies. There is no danger in interchanging combs from cured colonies, providing those colonies have been treated by the starvation plan. We have done it repeatedly, without any bad results.

CAN A BEE-KEEPER GO AFTER A SWARM OF BEES ON ANOTHER MAN'S LAND?

I have a neighbor who does not like bees. My swarms very often fly over on his land. Now, he forbids me getting them, and he says the next swarm will be burned or drowned. Please tell me at once the best thing to do, for I have a great feeling for my little friends, and will spend a lot of money to get satisfaction. J. H. BLANKEN.

Jersey City, N. J., June 15, 1888.

Friend B., there are two points to be considered in your question. As the legal point can be disposed of in a very few words, perhaps we had better take that first. If your bees or your cow or your pig by accident gets on your neighbor's ground, you have a right to go to work peaceably to get your property home again, and your neighbor can not legally forbid you from coming on to his premises for such a purpose. But you are liable for the damage you may do in tramping over his garden, or destroying his property in any way, and you are also liable for the damage your stock may do. So you see there is a big chance for a long fight and an expensive lawsuit on both sides if you and your neighbor are inclined to waste your money in this kind of summer recreation. You had better take my advice, friend B., and not have any quarrel about it, even if he does drown your bees, or burn them. And, by the way, there seems to be a bad state of affairs between you and your neighbor, judging from the statement you make. It is all right to have a kindly feeling for your little friends the bees; but it is far grander to have a kindly feeling for your neighbor, even if he *is* spunky and spiteful. Set to work to make friends with him. Why, I am sure you can if you go about it. Do every thing in your power to prevent the bees from going on to his premises. Make a hedge of evergreens away up above the hives, and there will probably be other means of preventing the bees from annoying him in any way. Pay him handsomely for the trouble either you or the bees have ever made him, and look out for his interests in every way. Watch for opportunities to do him a kindness; the same with his wife and children and friends. In short, heap coals of fire on his head, and God's blessing will rest upon both of you. Do not have bad feelings with your neighbors. Better move the bees away first. In fact, you had better give up bee-keeping, and stop taking your bee-journal (you see, there is where it hits us, friend B.), rather than have things in such a shape that your neighbor threatens to burn or drown your bees, if they come over on to his premises. Paul said, "If meat make my brother to offend, I will eat no flesh while the world standeth."

DYSENTERY; SHOULD HONEY FROM FOUL-BROODY COLONIES BE PLACED ON THE MARKET?

1. If the queen was caged in the fall, and placed inside of the brood-nest, and left caged till spring, what would be the result? Would it tend to check dysentery?

2. Is honey from foul-broody hives, fit to put on the market? Is it fit to eat? J. F. WHITMORE.

Grinnell, Ia.

(1) The matter has been tried a good many times, by keeping extra queens caged in strong colonies over winter. I have never heard of its succeeding. Two queens have also been admitted into one hive by dividing the colony by means of a solid partition of thin wood. As spring dwindling and attendant dysentery seem to start up when brood-rearing commences in the spring, it has been suggested that a queenless colony might winter better because they could not commence brood-rearing at all, and some queenless colonies have wintered better than those in the same apiary having queens.

(2) Honey taken from foul-broody colonies should not be placed on the market without first being scalded. The bee-keeper who would be guilty of such a practice would not be a friend to his brother bee-keepers. While infected honey would be just as good for table use, yet there would always be a liability, if such were placed in grocery stores and other places of retailing, that robber-bees might get at it. The inevitable result would be, that those robbers would carry the fatal disease to their home. If you know of any bee-keeper who knowingly places honey on the market received from colonies which are diseased at the time of the storage of such honey, we should be pleased to have you give us his name. We will first enter a gentle private remonstrance; and if that will not do we will try something else.

CAN A QUEEN, JUST EMERGING FROM THE CELL, GO BACK HOME AFTER BEING CARRIED SEVERAL RODS AWAY?

The other day, while taking care of some queen-cells, I found two so stuck together I could not separate them, so I left them both in the hive where they were built. Yesterday I examined them and found one queen had emerged, and the other was just cutting her way out. As she emerged I let her on to a good comb of bees, and then carried her and them about five rods to another hive, for a nucleus. As I let the comb of bees down into the hive, I saw her among them. In about two hours I went to fix the combs in the hive from which I had taken her, and, lo! she was back there. She flew past 20 hives, entered the one where she was raised, took possession, and the other queen, which was somewhat darker, lay dying on the bottom-board. How is that for artificial queen-rearing? S. C. PERRY.

Portland, Mich., May 25, 1888.

Friend P., I feel quite sure you have made a mistake somewhere. Is it not possible there was a third queen in the hive, unknown to you? In that case, the one you carried away, as she was just gnawing out of the cell, got lost somewhere, and you discovered the third queen in the old hive. After a queen has been out and taken her flight, she will, even a year or two afterward, go back to the very spot from which she made her bridal trip when carried away. Now, I know there are many strange stories told about dumb animals finding locations. A pig, for instance, will go home, even if carried quite a distance away, nailed up in a box so he can not see out to take his points; but I can not think it possible that a queen that has never taken a view of the surroundings of her home should be able to go back and pick it out. Even if it did occur as you narrate, I should prefer to decide that it was accidental, and that the same thing could not well happen again.

HOW TO MAKE A START AFTER HAVING HAD FOUL BROOD.

I have been keeping bees for several years. I have had sometimes 40 colonies. I now have none, from foul brood and other causes; and having nearly 100 hives on hand, I ask you as a father what I shall do. My means are very limited, but I am not quite satisfied to give up. Suppose I buy a one or two pound nucleus, and start in the very cheapest manner, with a good Italian or Cyprian queen; or had I better get a good strong colony which would probably swarm twice? what do you say? How shall I clean the hives? None of them are very foul. M. VERITY.

Appleton, Wis., Apr. 17, 1888.

You don't want to make another start in bees until you have boiled your hives and appurtenances so as to disinfect them from all germs of foul brood. They will not be fit to use otherwise. Your combs should all be melted and the frames scalded; but as new frames can be purchased so cheaply I think I would burn them up rather than scald them. I would advise you to purchase pounds of bees and untested queens. As you say you have foul brood in your vicinity, I don't think I should buy bees near you. If you can get colonies two or three miles distant from you in box hives, so as not to exceed more than $3 or $4 per colony, you might make a start in this way by transferring. See "Foul Brood," in the A B C.

IS IT AN ADVANTAGE TO LEAVE ON WINTER PACKING DURING SUMMER?

What would be the objection to leaving bees packed as for winter all summer? Would it not be a guard against the extreme heat of the sun, and also retain the proper warmth in cold nights and cold rainy spells? Would they need more ventilation? A.

Friend A., you will remember that our chaff hive is made expressly for holding the packing, both winter and summer. We have sometimes thought that the protection was of almost as much value in summer as in winter. Instead of needing more ventilation the bees will not need as much, other things being equal. Of course, the chaff cushions are not left on in the summer time, for the upper story usually contains either extra frames or surplus boxes. If you leave the chaff cushions in too late, it may cause the bees to cluster on the outside of the hive, because they shut up the ventilation.

THAT IMPROVEMENT ON THE SMOKER.

Friend Root:—I am 80 or 90 miles from home, on the Cowlits and Columbia Rivers, transferring bees and getting the folks started right in making section honey. We put on the sections, and in just a week they were capping them over. We had two swarms the 15th, and section honey the earliest I ever knew in Oregon or Washington Territory. In your improvement on smokers you nearly got the right idea in the loose valve; but why didn't you put it in the top, then it would fall open of itself? I have been using one that way for three weeks, and it appears about like the others. With one day's work the smoke and heat float out whenever it is set down, and it works like a new one all the time. If the improvement is good, let the bee-world have it. As to the large tube, I think that will make matters worse. It will draw in more smoke and make the blast too short. The cleaning of the tube is no trouble with a red-hot wire; but you can't clean the valve and sides. Put your sandpaper on the right of the fire-box. One day's transferring will spoil one where you put them. E. R. POPPLETON.

Freeport, W. T., April 23, 1888.

If you put a valve on top of the bellows, friend P., it will not respond quick enough. Careful experiment has convinced us that it is much better where it is. The valve should work so easily that it will close only by its own weight, in the Clark smoker. As to the proper size of the tube, the best way to convince you that the large tube is much better, is for you to try one. We find it will send just as good a blast as the small tube. It is unnecessary to use a red-hot iron in such a tube. As to the sandpaper, we have thought several times of making a change, for the reason you mention. Since reading your letter we have finally concluded to locate the sandpaper on the right of the fire-box.

MORE ABOUT HEMP AS A HONEY-PLANT.

I saw an article in GLEANINGS relative to hemp as a honey-plant. I had some growing near my apiary last fall, and the plant was covered with bees from morning until after dusk, the whole day, with such a roar—almost like swarming—and it yielded a nice clear amber honey too. The bees would not have made such a fuss over it had it yielded only pollen. I think it equal to the Simpson honey-plant; and then by perusing the daily papers we can see that it is quite necessary for the plant to be raised.

Thornton, Ind., June 13, 1888. J. A. UTTER.

Friend U., we are very glad indeed to know that hemp does, at least sometimes, produce honey. Now, will it not pay to hunt up large hemp-fields, and plant hives of bees near them?—Yes, it is true that hemp is a necessity, and it is a sad, sad truth. There have been some recent suggestions in regard to punishing criminals by using electricity instead of hemp. May God grant that the electricity and hemp both may be employed for some purpose that does not strike horror to the heart of every good man.

HEMP NOT A HONEY-PLANT.

In GLEANINGS for June 1, J. Cadwallader speaks of bees working on hemp. There is perhaps more hemp raised here in the Blue Grass region of Kentucky than in any other part of the United States; but I have never seen bees work on it. I do not doubt, however, that they do, but I do not think it amounts to much for honey. There are several hundred acres of hemp within reach of our bees. The hemp that has the seed does not bloom. This does not seem right, if the hemp depends upon insects for fertilization. WALTER B. DOWNING.

Lexington, Ky., June 8, 1888.

Your experience does not agree with the previous letter.

THE CLARK LASTING 9 YEARS.

Allow me to say a good word for the Clark cold-blast smoker. Although your books will show that I have bought a goodly number of them, I have used but one in my apiary, having now the first and only one I ever used, eight or nine years, and keeping from 50 to 100 colonies of bees, and yet it is in good working order. Would it not be an improvement to place the sandpaper at the *side* of the fire-box instead of the end?

You placed my last report in Reports Discouraging. All right for the report, but please do not place me with the report.

You ask in regard to the alsike honey granulating. The last year's production did granulate badly; but I have samples of 1885 liquid honey.

SEVERE LOSSES.

I have suffered severe losses in wintering my stock of bees, and nine-tenths of the dead colonies leave a good supply of honey stores, showing the trouble to be quality instead of quantity of the feed. Neither was it the cellar, for I have been heretofore successful, and my losses were greater, proportionately, with those wintered on their summer stands. I see my friend Dr. H. Besse places the loss at 20%; but my judgment is, it is some greater, some of our most successful bee-keepers losing fully a half, and some still more.

Ashley, Ohio, Apr. 16, 1888. ELIAS COLE.

In regard to the improvement on smokers, see previous column.

OUR QUESTION-BOX,

With Replies from our best Authorities on Bees.

All queries sent in for this department should be briefly stated, and free from any possible ambiguity. The question or questions should be written upon a separate slip of paper, and marked, "For Our Question-Box."

Question No. 61.—*What is the best tool for removing propolis from the sections of filled honey just from the hive—a common case-knife, a putty-knife, or what?*

I don't know. E. France.

See answer to 59. O. O. Poppleton.

A common case-knife. C. C. Miller.

A stiff knife suits us best. Dadant & Son.

I don't know; but I like a case-knife. Dr. A. B. Mason.

A dull pocket-knife with large blade. Geo. Grimm.

A putty-knife, or a common pocket-knife, is my handiest tool. Chas. F. Muth.

Either one will do. I use an old Novice honey-knife. Paul L. Viallon.

A common case-knife, and a wide chisel, not too sharp. Mrs. L. Harrison.

I have used a tool, really a wide short-handled chisel, which worked well. I had it made. A. J. Cook.

Any good light knife. More depends upon the skill with which the knife is used than upon the kind of knife. L. C. Root.

I have a nice elastic putty-knife; but somehow an old case-knife, two-thirds worn out, seems to get most of the jobs. E. E. Hasty.

With us, a mowing-machine section of good size. I should judge a stiff putty-knife, with sharpened edges, good for the purpose. P. H. Elwood.

This is a matter of opinion at best. Even skilled mechanics will not agree as to what is the best tool for a given purpose. I use a thick knife, ground sharp, but thick or blunt. H. R. Boardman.

One thing is sure, a pocket-knife is better than any thing you mention. Take hold of the blade near the point, so you can scrape rapidly, and yet never touch the cappings, your finger and thumb forming a gauge. James Heddon.

Propolis comes off the sections much better after they have been off the hives for a month or so. A putty-knife, cut off about half-way, and ground square on the end, is what I use. The square corner on the knife takes the propolis off nicely. G. M. Doolittle.

A knife with a round handle large enough to allow a firm grasp; blade about three inches long, with the back straight the whole length; edge parallel with the back to near the end, then rounded off to a point at the back. The edge should be rather thin, but not too sharp. A shoemaker's knife, ground as described, makes a good tool for the purpose. James A. Green.

I think the above answers indicate that, although a special tool may be very convenient, and quite a saving, it is a difficult matter to have it always at hand, as the bee-keeper has usually a pocket-knife always at hand. If, however, we are cleaning propolis from the sections, I think I would have a putty-knife, or something similar, fixed up against the wall, right opposite the place where you wish to sit when you do such work. A piece of wire cloth can also be tacked over an opening in the bench, a drawer right under this opening being arranged so as to catch the propolis, etc., as it drops. This idea of working over a sheet of coarse-mesh wire cloth has recently been alluded to as having been brought out at the convention in Albany a year ago last winter.

Question No. 62.—*Is it possible or practicable to breed out entirely the disposition of bees to propolize sections, hives, bearings, etc.?*

No. L. C. Root.

No. H. R. Boardman.

No. Geo. Grimm.

No. O. O. Poppleton.

I think not. R. Wilkin.

I guess not. James Heddon.

I don't believe it is. C. C. Miller.

It is, very likely, impossible. Chas. F. Muth.

Neither possible nor desirable. Mrs. L. Harrison.

Possible, perhaps, but scarcely practicable. James A. Green.

I don't think it is with our present races of bees. E. France.

No; they propolize mainly when they have nothing else to do. Dadant & Son.

I don't know, but am ready to invest in such bees as won't propolize as above. Dr. A. B. Mason.

No more than it would be to breed off any of their wings and legs, or breed a bee without a sting. G. M. Doolittle.

No more than a non-swarming race. There are instincts in bees that no breeding will ever eradicate. Paul L. Viallon.

I suppose so. Bees that are dead do not propolize; and from the average breeder's standpoint this will be the first result obtained. P. H. Elwood.

It is dangerous to say that any thing is not possible. Look at our Poland-China pigs. I have heard that the old primary hogs from which our improved ones were developed were so prominent of nose and so sharp of back that the feeder, to know whether they were in condition to kill, would simply raise them by the ears; and if the posterior end went down they were ready for the knife. A. J. Cook.

Without attempting to be positive, I will just give my views on this. If possible, it would be be ruinous wherever ants are plentiful. Trees secrete propolis mainly to keep ants from eating buds and other tender organs. The bees have "caught on" to the idea, and bring it to their hives for a similar purpose—to make their premises odious and unendurable to their most unwelcome guests. If it be true, that Carniolan bees carry little propolis, I should expect to find that there are few ants in Carniola. If any one wishes to try this scheme, the leading points would be, 1. Get the stock from a land where ants are lacking or scarce; 2. Keep them on a platform, the posts of which stand in crocks of crude petroleum; 3. Weed out all the propolis-carriers. I prefer to sit and look on.

E. E. HASTY.

It is amusing to see the little negatives strung along one after another. Prof. Cook, however, is a little slow about deciding, and replies with a joke. Prof. Cook so seldom indulges in jokes of this kind that it sounds quite funny. Hasty has given us a very interesting point, and I should not wonder if he were right about it, although I never thought of it before. I know ants dislike propolis, and bees do also, for that matter, if they happen to get their wings or legs caught in it. They are very nice and skillful, however, in stepping about so deftly when the hives are filled with it, for they never get into trouble unless man, with his modern combs and other fixtures, gets the poor bee into it.

QUESTION NO. 63.—*Have you found a bee-escape (a device which permits the passage of bees out but not into the inclosure) as a fixture to a honey-house door or window, an advantage? If so, please make a diagram of the one you use.*

Yes, decidedly. H. R. BOARDMAN.

I never could find a satisfactory arrangement.

PAUL L. VIALLON.

I have never used any bee-escape, except a swinging window. There are several good escapes.

P. H. ELWOOD.

No. I prefer that bees that find their way into a honey-room should remain there until night, when they may be released. L. C. ROOT.

My new bee-house has wire screens at windows that open out. At the top of these are funnel-shaped long ⅜-inch holes. When I try them I will report. A. J. COOK.

With our screen house, we need no bee-escapes. It is simple to fix a window so as to accomplish what you wish. We consider a description too long for this department. JAMES HEDDON.

I have succeeded so far in getting along without any such device; consequently I have none to illustrate. When I get "that new honey-house" built, perhaps it will have one on it. E. E. HASTY.

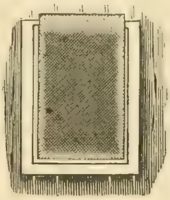
Bees naturally fly to the window, and a few moments' work in lowering the window and brushing with a feather rids me of them. I never used a device of the kind suggested. GEO. GRIMM.

Yes. Simply tack a few pieces of lath above the window on the casing, and let the wire cloth covering the window run up on them six inches or more. In this way the bees from the inside run up and out while those on the outside try to get in below this escape. G. M. DOOLITTLE.

I let the upper half of my windows down, fasten a wire gauze above the outside of the window, and let it extend over ⅔ or more of the lower half without tacking it below. The bees don't dive and crawl up into my room, though the outside of the gauze is full of them at times. But bees in the room (carried there) fly against the wire gauze; and, when tired, fall down and out of the crack.

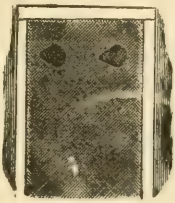
CHAS. F. MUTH.

Yes, I consider a bee-escape of some kind as an indispensable fixture. I have used several devices; but the cheapest and most satisfactory one is the device invented by E. J. Wells, a very poor figure of which was given on page 299 of GLEANINGS for 1886. The common device of running the wire screen several inches above the top of a window will usually work, but not always, as I have at times been seriously troubled by the bees becoming too well educated in the details of that arrangement. O. O. POPPLETON.

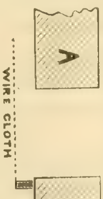


We send you a proof engraving of the new "Langstroth on the Honey Bee," to be published soon. The bee-escape is at the top between the wall and the screen. Hundreds of apiarists have taken this method from us, and are using it. DADANT & SON.

After various experiments with bee-escapes, I have found that, to have your honey-house provided with close-fitting blinds, so that you can make it quite dark; then if in taking off boxes or sections you get the house full of bees (so to speak), by letting them stay in the dark a few minutes, and then lowering the upper sash and opening a panel of the blinds, or even the door, I can clear the house of bees quickly. MRS. L. HARRISON.



Yes. I should not want to try to get along without them. I prefer simple cones of wire cloth, three inches in diameter at the large end, with a ½-inch opening at the small end, and 5 inches long. Put two of these in the top of each window. Sometimes bees find their way back through these. I then keep them closed most of the time for a few days by a plug of cloth or paper. I have used these cones double—one inside the other—but this is not much use. JAMES A. GREEN.



I couldn't keep house without a bee-escape. Here's a cross-section of the one on my shop. A hole through the wall a foot square or larger, two strips of lath nailed on the outside on the two sides, and a piece of wire cloth, nailed over all. The lath holds the wire cloth out from the wall, so there is between the wall and the wire cloth a space of about ⅜ of an inch. The bees crawl up this space to get out, but don't know enough to go down in. In my out-apiaries I take Root's plan of an open-top tent. Without having had the chance to try it yet, I think highly of Reese's bee-escape.

C. C. MILLER.

We have a shop in the middle of our bee-yard at home, with two windows; also two storehouses for honey and combs, with windows—in all, seven windows, with bee-escapes. Bees go out very readily. I never knew of a single bee going in through one of those windows. It is simply a wire screen, wide enough to tack on to the outside casing and down on the window-sill. Let it run up above the window to ¼ of an inch of the weather-strip, on top of the top casing. Put two or three strips, ¼ of an inch thick, under the wire above the windows, to keep the screen out from the side of the house. To get bees out of the house, let down the top sash of the windows an inch or more; the bees will find their way out, and ours never return.

E. FRANCE.

While a good many have never used a bee-escape at all, it transpires that quite a few of the friends are using them, and with profit. If I am correct, Dadant's and Miller's bee-escape are one and the same thing in principle. The cut of the one shows a sectional view, while the other a front view. Am I right?

NOTES AND QUERIES.

ZINC QUEEN-EXCLUDING HONEY-BOARDS.

ASK your experts if the zinc honey-board *always* excludes the queen. Raising a super yesterday, I was surprised to find her majesty on the board. She was an old laying queen in a strong stock. She passed through a slot in the board readily. **O. BRUMFIELD.**

Brumfield, Ky., June 8, 1888.

[The perforation in all zinc that we know of is so made as to let the bees pass through readily, but just exclude the queen. It is only in very rare cases that a queen will be found small enough to get through. The perforations might be made small enough to exclude even small queens, but then even workers will hardly pass through; and, when filled with honey, not at all.]

How many days is it before foul brood will be developed in a colony of bees, from the time the bees take it into their hive? **J. S. BRAITHWAITE.**

Manti City, Utah, May 29, 1888.

[We can not tell how long it takes foul brood to develop after the germs are brought into the hive —probably a couple of weeks.]

Will good syrup-barrels do to put extracted honey in? **L. H. ROBEY.**

Worthington, W. Va., June 10, 1888.

[Good syrup-barrels will answer perfectly well if they are scalded out. Two or three of our large honey-producers in the South use these barrels exclusively. I think I should also wax them on the inside, as per directions in the A B C book, under "Barrels."]

CHICKENS EATING BEES; DO THEY EAT DRONES OR WORKERS, OR BOTH?

When chickens take to catching bees, do they eat workers, or do they catch the drones?

Jeffersonville, Ky., June 9, 1888. **W. J. DANIEL.**

[Chickens, when they get into the habit once, will eat both drones and workers. Reports have been received where only drones were found in their crops, and again only workers; but quite a number have corroborated the statement that both drones and workers are eaten. It is seldom that chickens ever get into the habit of eating bees. We have quite a number of chickens in the vicinity of our apiary, but we have never yet known one to be guilty of the act.]

RIBWORT.

Will you or some of your correspondents tell something of ribwort (a species of plantain), as a honey-plant? also of the common persimmon?

York Institute, N. C., May 13, 1888. **J. S. PERRY.**

CANNING SNAP, OR STRING BEANS.

I see in GLEANINGS that some of the bee-keepers told us how to dry and cook sweet corn. Will you please have some brother bee-keeper tell us how to can snap, or string beans? **J. F. HEPP.**

Boonville, Ind., May 23, 1888.

WON'T HATCH THE EGGS; WHAT'S THE MATTER?

I have a swarm of bees full of honey. It was a good one last year, and this spring the same queen lays plenty of eggs, but the bees won't hatch them. What is the matter? I never heard the like in 25 years of bee-keeping. The eggs are not touched by the workers. The queen is a nice one—Italian. All the rest are booming. **ISRAEL JACKSON.**

Cambridge, O., May 26, 1888.

[You will notice that we say, in the A B C book, that such a case as yours may happen once in a great while—say one queen in ten thousand may produce eggs that will not hatch. There is no remedy but to destroy the queen and give the bees another one.]

FERTILE WORKERS.

I have a swarm of bees which has been queenless for some time. It is full of drone brood. May 7th I gave it a frame of eggs, larvæ, and brood. May 31st I gave another frame of brood, with a queen-cell, but they tore down the queen-cell two days later. They have plenty of honey, and the swarm is a large one; but the bees do not work now, neither will they try to raise a queen. What shall I do with them? I have been thinking of uniting a young swarm with them. Would this do?

Harmer, Ohio, June 4, 1888. **G. O. SALZMAN.**

[Your bees have fertile workers, I think. You can unite the other colony you speak of, with them. It may cure them, and it may not. We usually divide them up, placing the frames of bees and brood among several strong colonies.]

HOW MANY COLONIES TO AN ACRE OF BUCKWHEAT?

I have 28 colonies of bees, and would like to know how many acres of buckwheat to sow for them to be profitable. Any other information gladly received. **W. L. HARPER.**

Gallatin, Sumner Co., Tenn., June 6, 1888.

[With about 60 colonies we once secured about 200 lbs. of surplus from two acres of buckwheat. Besides this, a large amount must have gone into the brood-apartments. An acre of buckwheat in a good season ought to fill the brood chambers of your 28 hives; but unless you have a good locality and a good season, you may get nothing but the seed. See "Buckwheat," in the A B C book.]

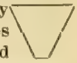
SWARMING IN APRIL.

To-day a small swarm of bees, about as large as a quart measure, settled on a tree. This is very strange to me, as the apricot-trees are only just out in bloom, it being a late spring. **EDWIN PARKER.**

Hooper, Utah, April 15, 1888.

[If no honey had been gathered of any account, I should say that this little swarm was one that starved out; but an examination of that hive would soon settle this matter. If the hive contained plenty of stores and brood, I should say it comes under the head of "Absconding Swarms," as described in the A B C book.]

WEDGES FOR TOP OF SECTIONS.

I would suggest that we use small wedge-shaped strips of wood for filling the spaces between the rows of sections on top the T supers, cut just the right length to go inside the box crosswise, and shape of about like this cross-section.  They would, I think, effectually prevent the bees from filling these spaces with propolis, and would be very much cheaper than using extra T tins on top, as they would cost almost nothing.

Peoria, O. **R. L. CLEGG.**

[Your suggestion is good, friend C. If we are to use any thing to fill the spaces between the top corners of the sections, the wedge you speak of is about as good as any thing. If we use spacers at all, we must have something that will close up the interstices perfectly tight, such as a wedge.]

MYSELF AND MY NEIGHBORS.

Whether ye eat, or drink, or whatsoever ye do, do all to the glory of God.—I. COR. 10:31.

ONE great reason why we fail in having pleasant relations with all of our neighbors is because we have different opinions in regard to different matters. It is true, we have often been advised to agree to disagree on disputed points, and so let the matter drop. But this state of affairs is often unfortunate. It was recently stated in my hearing, that, in a certain town in the State of Ohio, having a population of about 500 people, there are seven different church buildings. Notwithstanding this ample opportunity of giving every individual, as it would seem, the privilege of worshiping God according to the dictates of his own conscience, the facts are, that, when the speaker visited that town in behalf of the Sunday-schools of Ohio, the whole seven churches, except one, were standing idle, without services of any kind; and this one church had preaching only *once in four weeks*, and the *minister* came from *some other place* to preach the gospel to this town of 500 people. I hope this statement is an exaggeration; and in thinking it over I have felt that it *must* be an exaggeration. And yet I remember that, in little towns within a few miles of my home, there are churches that cost considerable money, standing empty and idle. In one place, where there is but little more than a store and a blacksmith shop, there are four churches—two of them unoccupied. I do not know whether these different denominations have agreed to disagree, and drop the subject, or not; but it is certainly a very sad state of affairs to contemplate. It certainly is not according to the spirit of our text, to do all for the glory and honor of God, that this state of affairs should continue. Unbelievers can hardly be blamed for looking on with a smile, and perhaps even jesting and making sport of those who profess to be God's people. I can hardly blame them for saying, "See, these Christian people have so many separate notions that they have built seven different churches; and even *now* they are not satisfied. With all these accommodations they can not scrape up enough Christian grace to keep up regular services in even *one* of them. Had they not better tear them down or use them for some useful purpose, and do as we do? Are not our chances of heaven (if there be any) just as good as theirs?"

Many of us have been fondly hoping that the state of affairs mentioned above is passing away; that the walls between different denominations are slowly coming down, and that Christ's spirit is drawing all mankind nearer to each other; that intolerance and bigotry are passing away. I do believe that such is the case, dear friends; but may God help us in the urgent need that every Christian believer shall closely examine his own heart to see if it be not possible that he is a stumbling-block in the way of allowing God's kingdom to come, and his will be done on earth as it is in heaven. The above thoughts were prompted by a kind letter, part of which I give you below.

KEEPING SATURDAY INSTEAD OF SUNDAY.

Mr. Root:—I have recently read an extract from an article said to have been written by you, to the effect that you would not gather your maple sap from 12 o'clock at night on Sunday until the same time upon the following night. In your A B C book I also find similar sentiments in regard to hiving bees upon that day; and from this and other of your writings I gather the idea that you have a high regard for sacred things, and do not allow the cares of this world to absorb your attention to the exclusion of things more enduring, as most busy people do. Will you now pardon me for taking a portion of your valuable time with thoughts of mine? I also, though leading a busy life, am much interested in eternal things, and feel the necessity of a careful observance of the Sabbath, and also of the remaining nine commandments. I lay aside the cares of the week to perform the duties of Sabbath-school superintendent and church elder; but while I am engaged in this work, the workman's saw and hammer may be heard in your factory, and the busy hum of a thousand enterprises can be heard in the land, perhaps with greater vigor than upon other days, preparing for the morrow's rest; for our little band of forty persons or more lay our burdens down Friday eve, as the sun disappears in the west, and labor ceases until the same sign proclaims the Sabbath ended upon the following evening. Thus in this land of ours two days are kept, each held sacred by its adherents, and both parties zealous in the cause of God. I am a humble member of one class, you of the other. One of us must be wrong, and no other conclusion can be reached. If it is I who am zealous in observing a false Sabbath, week after week, then some friend, imbued with the Spirit of the Master, has a duty to perform in demonstrating to me my mistake; and if it is you, then a similar duty lies upon some one (and why not me?) to do the same to you. Each of us, no doubt, is sure of his ground. Every variety of belief necessarily implies this where opinions differ.

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BEGINNING THE SABBATH AT SUNDOWN.

You seem to regard the sin of Sabbath-breaking as beginning at midnight. Do you not know that this is the civil day, and comparatively modern in its origin? Do you think God is so plastic or elastic as to mold himself to human customs and whims? This would cause the Lord to reason something like this: "I have said, From even until even shall ye celebrate your Sabbaths, Lev. 23:32; and in Neh. 13:19 I have made this same thing plain to you, but you want it from midnight to midnight. Have your own way if you want it; mine doesn't amount to any thing."

You will find in Matt. 28:1 these words: "In the end of the Sabbath, as it began to dawn toward the first day of the week, came Mary Magdalene and the other Mary to *see* the sepulcher." Have you any idea they came at midnight to *see* the sepulcher? * * * * * * * * * * *

Can we trust a day that has no divine sanction, but condemnation only? I have for a long time concluded that I can not, and find it no cross to submit to the inconvenience. Did not Paul say, Acts 20:20, that he kept back nothing that was profitable unto you? He certainly kept back the matter of Sunday observance. Conclude, therefore, that it is either unprofitable or unsanctioned, and take God at his word; keep the right day next Sabbath, and, between the hours that God designed it to be kept, it can not be kept too strictly. See Ex. 34: 21, and Isa. 58: 13. Yours in hope,—

N. E. LOVELAND.

Green Spring, O., May 28, 1888.

I thank you, dear friend, for the very kind and fair way in which you write; and I want to say here to our readers that I have received a great many letters on the above subject. Some of them I have replied to privately, and others seemed so unreasonable and intolerant that I felt that I could do nothing but breathe a prayer that the great Father might help us all to climb above the temptations that seem mysteriously to attach themselves to discussions of a theological nature. Geike, in his Life of Christ, says that religious hatred is the most intense of all hatreds. Now, may God help us both to have Christian charity enough to avoid all such temptations. I will explain to our readers further, that, after the stars given above, follows matter too lengthy for our columns. Most of it is Scripture texts, to prove that God expects us to obey *literally* his command in regard to keeping the Sabbath. I would remind our good friend what Paul says—"The letter killeth, but the Spirit maketh alive." Now, may God give *me* grace to be truthful and tolerant and fair, when I say that none of the texts quoted by our brother would indicate to me there ought to be a change in regard to what we call the Sabbath-day. Let me illustrate my convictions on the subject by a little incident in our office.

Book-keepers, above all other people, ought to be accurate and literal. The safety of the accounts intrusted to their care depends upon being accurate, even to a figure or fraction. In fact, we have, in our business, decided that there is no other way than to *keep accounts*, even to coppers. Not a few of our good friends have been offended because they have received statements where debits and credits were made, when the amount involved was only a few cents. And I have sometimes been obliged to explain to them that our work is done by a system of rules; and in carrying out these rules it frequently happens that one might think we were singular and small, in taking notice of such little things—for instance, notifying a man that 11 or 12 cents remained to his credit, and asking him what disposition he wished made of the amount. Well, some years ago the book-keeper informed me we were not receiving enough postage-stamps for the needs of our business, and that some would need to be purchased. I assented, and then came the question, "How many shall we get?" Now, ordinarily I should have said:

"Oh! perhaps you had better get, say, ten dollars' worth." Being in a hurry, however, I presume I omitted the qualifications, and answered briefly, "Get ten dollars' worth."

A little time after, I found an important mail, containing letters of much moment, standing on the wheelbarrow, after the time they should have gone to the office. Delays in the U. S. mail always vex me, and I went from one to another, and demanded the cause. I found the trouble was, that, just as the mail-boy was starting to the office, he was asked to wait a minute for the money to get some postage-stamps. When I found the book-keeper she was hurrying around to get the *ten dollars*, there not being enough in the money-drawer for the purpose. They had scraped up from the different clerks perhaps eight or nine dollars, and were going to others to get the rest of it. I was somewhat stirred up by this time, and replied, perhaps rather vehemently:

"Why, you need not get ten dollars. Give the boy what you have, and start him along before those important letters fail in getting off on this train."

My manner and words stirred up a little ill feeling, perhaps, in the heart of the book-keeper, for I was criticising her methods. She replied, "Mr. Root, you yourself said we should get *ten dollars'* worth." I shall have to admit right here a bad trait in my character. When I am vexed I am apt to be a little regardless of the truth. It was on my tongue's end to say, and I am afraid I did say it, "I did *not* say get ten dollars' worth." What I meant by this, and what I should have said had I not been excited, would have been, perhaps, as follows:

"Why, my good friend, I am sure I did not say that you should get *exactly* ten dollars' worth of stamps. But even suppose that I did say so, do you not know as well as I do, that it is of no moment whatever, whether you get nine dollars' worth or even only five dollars' worth in place of just ten dollars' worth? The boy was already late, as you were probably aware, and there is great danger that letters will fail to get off where many dollars were at stake. Why, then, insist on keeping the boy till you could scrape up fifty cents or a dollar, that you might obey your orders to the *letter*, when the *letter* was of no consequence? In fact, when you asked me the question as to how many stamps we had better get, the very question implied that only a few were wanted to make up for the lack. One dollars' worth might have answered; but to avoid being obliged to make a second demand for stamps very soon, it would be better, perhaps, to get several dollars' worth; and in mentioning ten I did so supposing there were plenty of funds to be had, without any delay, as is usually the case."

Now, the book-keeper might have replied that my orders were to get ten dollars' worth, and that, under the circumstances, she had no authority to get any more or less. She might have added, too, that she was entirely innocent in the matter, and that I was very much out of place to get cross, and to scold, when they were all doing their best to do exactly as I had told them to.

You see, dear friends, we might have talked on this very subject for half a day, and, very likely, the longer we talked, the more bitter and unchristianlike we should both get.* We were both professing Christians, and are now; and I trust that this fact alone, if nothing else, kept us from wasting many words, or from cherishing any unkind feelings, in regard to the matter. Do you see the application? Have you not seen professing Christians argue on the subject of baptism, or, if you choose, on the observance of the Sabbath, much in the same way? The whole trouble is in misunderstanding, or, perhaps, more accurately, in a difference of opinion. In giving orders to the help about our establishment we frequently run against both extremes. One man will be so literal that he stops progress, and may be, is a laughingstock to those about him. I generally take such a one's part, however, for he is a valuable man when you come to know him. More often, however, we meet people, especially younger ones, that it seems impossible to get to do as they are told. They have never been accustomed to working to the line or to the letter, and just as soon as your back is turned they have deviated so far from what you have told them that the work is spoiled. Where is the golden mean? Why, I think it is in exercising good common sense. Please do not understand me to mean to be offensive when I use this term. One who assumes important places, who takes the management of men and property, must continually use his judgment in deciding to obey according to the letter or according to his better judgment.

Is it not true, dear friends, that we glorify God by *using* our judgment and common sense in the way I have indicated? Do you not dishonor him by getting angry and stubborn and headstrong in arguing unimportant matters, as in the case of the postage-stamps? It is sad enough to see two professing Christians losing their temper in this way; but think of the spectacle before the great outside world, of bodies of Christians manifesting an unbrotherly and unchristian-like spirit. Do the seven churches in that town glorify God by the spectacle of seven *empty* churches? May God help us!

No, dear friend L., I have not any idea that the Marys came to the sepulcher at midnight. Neither have I any idea that God's people counted time from midnight as we do. Why, dear friend, you give me pain when you go to such lengths on this matter that I must think unimportant. Pray consider a moment. The Bible was certainly intended for all times and for all localities. Well, even the very pages of GLEANINGS, on which your eyes are resting are now read in localities where the sun does not rise at all for several days, and again at another season of the year it does not set at all for several days.† How shall we count time in such localities?

And now we come to your last point, for I feel that it would be wrong to occupy more space or more time in this matter.

Perhaps I should say, in answer to your closing thought, that I have never gone over the arguments on either side of this question, and I hope I am excusable if I say it does not seem to me to be necessary. As in the case of the setting of the sun, there is no possibility, as I understand it, of deciding what day was kept as Sunday in olden time. Some time ago the *Scientific American* made mention of an island in the Pacific, settled by two companies of people, each coming from a different direction. Both companies had counted correctly, yet the days of the week did not agree, and it is not yet settled which company has the best authority to be considered right—that is, one company might call a certain day Monday, and the other company can with equal propriety call it Tuesday. Does not this geographical fact upset the whole matter? If, however, our Seventh-day friends confine themselves to something still narrower—that is, that the day universally counted as the last day of the week, shall be called the Sabbath, it seems this state of affairs is sadder still.

So far as I am concerned, with all my privileges and with all my intercourse with the world, I did not know, until recently told, that Sunday was generally considered the first day of the week. As Monday is the first working-day of the week, if somebody had made an appointment for me for the first day of the week, I should have accepted Monday as the day, without any hesitation. Now, if our friends are so tenacious about this matter, which I must think comparatively unimportant, why shall not the world at large accommodate them by agreeing to call Monday the first day of the week, and Sunday the last, or seventh?‡ If they reply, even that will not satisfy them, I will try to say with the best grace I can, that I can not give the subject any further attention. While our jails are overflowing, and new additions are being constantly required; while the fight against intemperance seems to be gaining ground, and nothing more is needed but to unite Christians; and while other great questions are before us, needing every inch of space in our journals, and every hour that every Christian man or woman has to spare, can we waste time about a civil war among ourselves in regard to something that at least a large part of earnest Christians deem only a technicality? Dear friend L., after the kind letter you have written us, can it be possible that you and your people are only (as the Savior expressed it) *straining out gnats and swallowing camels?* Think of the town with seven empty churches going to dilapidation. Think of the other towns where saloons are running rampant because members of different churches refuse to work together; then let us ask ourselves the question if we are, in our differences, conforming to the language of the text with which I started this talk to-day.

Whether ye eat, or drink, or whatsoever ye do, do all to the glory of God.—I. COR. 10: 31.

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* I have been told that two Christian ministers once spent several weeks in arguing on the subject of baptism. One talked a certain length of time, and then the other talked. Nothing resulted, however, from all this talk.

† See p. 796, Oct. 15th issue, 1887.

‡ The world at large never uses the terms second, third, fourth, etc., as applied to the days of the week; therefore no change of any moment will occur to business or any thing else, if people who prefer, decide to consider Monday the first week day.

THE BEST NEWS.

Back again from weary wanderings,
  To the dear old place;
Glad to clasp the hand of friendship,
  See a kindly face.

What news? Why, the best of all things—
  News the very best;
What will cause you most rejoicing
  As at home you rest?

Not more wealth and not more honor;
  'Tis what you desire;
Wherefore look so very thoughtful?
    Do you not inquire?

'Tis what you have hoped and prayed for,
  Looked for many years;
Oh! can it be that well-loved daughter?
  Wherefore flow these tears?

"Connie?" "Yes! she is converted—
  Given her youthful heart
To the blessed loving Savior—
  Chosen Mary's part."

Blessed news! what glad thanksgiving
  Rises in your breast!
And in heaven what great rejoicing
  'Mid the pure and blest!

MRS. M. A. BIGELOW.

Malone, Franklin Co., N. Y.

TOBACCO COLUMN.

CONDITIONS UNDER WHICH WE GIVE SMOKERS TO PERSONS WHO STOP USING TOBACCO.

First, the candidate must be one of those who have given up tobacco in consequence of what he has seen and read in this department. Second, he promises to pay for the smoker should he ever resume the use of tobacco in any form, after receiving the smoker. Third, he must be a subscriber to GLEANINGS. Any subscriber may, however, have smokers sent to neighbors or personal acquaintances whom he has labored with on the matter of tobacco-using, providing he give us his pledge that, if the one who receives the smoker ever uses tobacco again, he (the subscriber) will pay for the smoker. The one who receives the smoker in this case need not be a subscriber to GLEANINGS, though we greatly prefer that he be one, because we think he would be strengthened by reading the testimonials from time to time in regard to this matter. The full name and address of every one who makes the promise must be furnished for publication.

HOW SHALL WE FIGHT THE BATTLE?

I AM glad to see what one State has done in stopping the sale of tobacco to our dear boys. What a shame for church people to sell the deadly nuisance! No wonder the church gatherings are small, for the Spirit of God will not dwell in such hearts. And, too, how underhanded it is to try to carry on temperance meetings, and, as soon as one speaks of tobacco, the president gets up and says it's not to be talked there, for so many use it, and "I am one of the number." Ah, the law is for the lawless, no matter whom it hits. So *we* may say, many use rum, and so we must say nothing about it. I firmly believe, if tobacco were cleaned out of the land, drunkenness would cease to a greater degree than ever before. How often people tell us it is harder to leave off tobacco than rum, and yet they are encouraging it all the while! How many are kept poor in purse as well as *health* by it! Only 5 cents a day is a snug little fortune in a common man's life, besides the misery of a guilty conscience. Go on, Bro. Root; no wonder you are successful in business, for you are doing the will of our Savior. Excuse these few hasty remarks, for it's hurry now with me, early and late. Bees, garden, grafting, etc., take each moment. **E. P. CHURCHILL.**

Hallowell, Maine.

Gently, my good friend. Although all you say may be true, I am afraid you are wounding, by your severity, the feelings of many a good brother who reads GLEANINGS. It is a little sad if the president of a temperance meeting is a user of tobacco; but I think it is sadder still to drive him away from the meeting by our harshness and intolerance. Remember what Jesus told Peter—"Put up thy sword." GLEANINGS has been successful in getting a good many to give up the use of tobacco; but please bear in mind, dear brother, it has been done by gentleness and kind words, not by reproaches and harshness. "Not by might nor by power, but by my Spirit, saith the Lord of hosts."

As I have stopped the use of tobacco, I promise to pay the price of a smoker if I begin again. **E. G. HOWLAND.**

Manchester, N. Y., May 14, 1888.

Thomas Eilar has quit the use of tobacco; and if you think him entitled to a smoker, please send one; and if he commences using the weed again I will pay for it. **SILAS THRAILKILL.**

Barber's Mills, Ind., June 6, 1888.

Send a smoker to Charlie Norris, Nehawka, Neb., as he has quit using tobacco, after the use of it for years. If he ever uses it again he will pay for it. **W. J. HESSER.**

Plattsmouth, Neb., June 5, 1888.

ANOTHER BROTHER GOES BAIL FOR A NEIGHBOR.

If you will send your old customer, Dave Willis, a smoker, I will pay you for it if he commences using tobacco again. I had a talk with him yesterday, and he said he would quit its use. **I. T. TALBOT.**

Jonah, Tex.

ANOTHER PLEDGE.

As I want to stop using tobacco, and need a smoker, I have made up my mind to stop; and if I ever use any more tobacco, I will send you the price of the smoker. **E. A. EASTMAN.**

Clintonville, Wis.

HAS SMOKED 30 YEARS.

My husband has smoked for 30 years, and has now given it up. If you will be kind enough to send him a smoker I will see that his first smoke will cost him $1.25. **MRS. R. W. SUMNERVILLE.**

Tomahawk, Wis., May 9, 1888.

A FREE MAN FOR A WHOLE WEEK.

After reading your kind offer so many times to so many tobacco-smokers, I thought I would try it. I have not smoked for one week, and don't intend to again. If I do I will send you the cash for the smoker. **L. H. BIRTSCH.**

Whatcom, Wash. Ter., May 3, 1888.

A USER FOR 40 YEARS.

I have used tobacco for forty years, but quit last fall, and have not used it since; and I pledge myself not to use it again if you will send me a smoker; and if ever I do use it again, I will pay you the full price of the smoker. **G. W. WILCOX,**

Hopkins, Mo.

CAN GET ALONG WITHOUT IT.

I have used tobacco for a number of years, but gave it up a short time ago, and find that I can get along without it. If you send me a smoker, and I ever use tobacco again in any form, I will pay you for the smoker. **CHAS. A. TRAY.**

Littleton, Colo., Mar. 24, 1888.

BETTER OFF WITHOUT TOBACCO.

I have not smoked since I read your journal. I smoked once for heartburn; but since I quit it I have better health. If I am entitled to a smoker, send it along; and if I ever use tobacco again I will pay you one dollar for it. **T. OBERLITNER.**

Deshler, O., Apr., 28, 1888.

A USER FOR 25 YEARS.

I have made a determination to quit the use of tobacco. I have used it for 25 years. If you think I deserve one of your smokers you can send it along. I will promptly hand over the price of the smoker if I ever begin again. I pledge my word and honor to you as security. **M. T. MORGAN.**

Waynesburg, Ky., Apr. 21, 1888.

GOING BAIL FOR A YOUNG FRIEND IN THE TOBACCO BUSINESS.

I have a young friend here who has been in the habit of using tobacco. I have succeeded in getting him to quit its use, and told him, when I saw he meant it, I would order a smoker for him; that you offered smokers to all parties that would quit using tobacco. Please send it in my name. He holds me to the contract. **J. S. BIDDLE.**

Laysburg, Pa., March 2, 1888.

That is right, friend B. Look after the boys. Shake them up and work them up, and God will bless you.

HOW ONE FEELS AFTER HE HAS ACCEPTED THE PLEDGE.

Your kind offer was received yesterday in the form of a nice new smoker. Many thanks. I have not smoked for a month, and have no desire to try it now. I hope every one with the dirty habit will accept your kind offer, and stop smoking.

LOUIS H. BERTSCH.

Whatcom, Wash. Ter., May 25, 1888.

SETTING THE BALL ROLLING.

Mr. John S. Lewis, my neighbor, on hearing of your offer, has quit the use of tobacco. If you will send him a smoker packed with my goods I will pay you for it, if he ever uses the weed again. Thanking you for the smoker you sent me, and the good that abstaining from the use of tobacco has done me, I remain your friend,— **R. M. TATE.**

Somerset, Ky., May 21, 1888.

A MINISTER OF THE BIBLE WHO HAS RESUMED USING TOBACCO.

I have written to you but once, and I now blush at having to inclose to you the pay for the Clark smoker. My pa is a minister, and he has resumed the use of tobacco. I must tell you that *I* do not use tobacco, and never intend to.

G. R. HOUCHINS.

Pipestem, W. Va., May 30, 1888.

May God bless your pa, my dear child, even if he has gone back to the use of tobacco; and may God bless you too, for the promptness with which you informed us that your papa had decided he would rather pay for the smoker than to fight against the appetite for tobacco. But tell him for us, dear child, that the cross he has undertaken to carry, and given up, is the cross of Christ Jesus the Savior, whom he strives to serve and honor. Will you not bid him consider again, and think of the influence he must exert on the youth in his parish, as well as on the older ones, and ask him if he will not try again—perhaps not for the sake of a smoker alone, but bid him remember that it is for Christ's sake that he fights the battle.

QUIT FROM 50 TO 60 CENTS' WORTH OF TOBACCO A WEEK.

I am one of the A B C class. I also consider GLEANINGS the best of all papers treating on the bee-question. From it I learned of your liberal offer to tobacco-users, and I made up my mind that, if you could afford to make such an offer to strangers, we all ought to quit. I have used from fifty to sixty cents' worth a week for 17 years. I have quit now, and have no desire to use it again. If I use tobacco again I will send you one dollar to pay for the smoker. **M. E. HOLMES.**

Dorchester, Neb., Mar. 25, 1888.

AFTER A HARD STRUGGLE.

After long and hard efforts I feel that I have at last gained the victory over the useless and filthy habit of using tobacco. I left it off about 8 months ago. I felt that I wanted to get from under its influence well before I asked for the smoker. I present to you the name of my friend T. B. Moore, of this place, who left it off at the same time. We request you to send us two smokers, if you think us entitled to them. We agree to pay your price for the smoker if we commence the use of tobacco. **D. B. BRYAN.**

Rome, Ga., Apr. 16, 1888.

May God bless you both, dear friends. There is an advantage in having somebody break off with you, for "in union there is strength." You can mutually help each other, and you can be a mutual check on each other.

TWO RESOLUTIONS FROM THE PROBATE JUDGE OF POLK CO., MO.

I have resolved to quit the use of tobacco, and claim one of the new Clark smokers, with the enlarged blast and loose valve. I will pay for the smoker if I ever use the weed again. I have also been telling of the good things you are doing through GLEANINGS, to one of my neighbors who is or was a slave to tobacco (his name is Greene Botts, of Bolivar, Polk Co., Mo.), and he promised me to for ever quit its use, and asks that you send him a smoker. He will pay for it if he ever uses it. If he does not pay you when he breaks this pledge I will pay the debt for him. **A. J. LOWER.**

Bolivar, Mo., May 21, 1888.

Friend L., I hope you will excuse us for letting out the truth that you are a probate judge. I am sure you will when I explain to you that your example, and the position which you occupy, may do a vast amount of good. Our probate judges, as well as our lawyers and doctors, are, a great part of them, users of tobacco; and the influence they exert is wide and strong, especially over the boys. When this Tobacco Column was first started I little expected to have it honored by a probate judge among the number who took the pledge.' May God bless you, dear brother, in your resolution.

RESUMED THE USE, BUT PAYS UP.

I obtained a smoker under the caption of Tobacco Column. There may be those who know the deed; and as I broke on part of my promise I sent you 70 cts. You gave me credit privately, yet it might be as well to publish this and save me from the terrible consequences of suspicion.

Beason, Ill., Mar. 27, 1888. JAMES HAMILTON.

ANOTHER WHO HAS RESUMED TOBACCO, BUT PAYS UP.

Inclosed find 75 cts. to pay for the smoker you gave me for quitting the use of tobacco. Sorry to tell you that I have taken up the filthy habit again; but I got to craving it, and it seemed that nothing else would do me any good. Do not think hard of me. C. M. SMITH.

Palestine, Tex., Apr. 21, 1888.

Rest assured, friend S., that we shall never think hard of anybody who pays up squarely and honestly, as you do, when he decides that he prefers not to give up the use of tobacco. It is all square, and we can shake hands over it, and be just as good friends as before.

A BROTHER WHO HAS SMOKED TO SOME EXTENT.

I never chewed tobacco, although I tried it several times. I have smoked to some extent, and, seeing your liberal offer in GLEANINGS, I make the pledge: "If I ever use tobacco again in any form, I will pay you for the smoker." B. F. HOOVER.

Penrose, Ill., Apr. 6, 1888.

Friend H., I hope you will excuse me if I suggest there is a little danger in giving smokers as you state it. The danger is this: Somebody who has used tobacco a very little, or, may be, who used it a good while ago, might commence again, or smoke a few times, just enough to say he had given it up, so as to get the smoker. I don't suppose that 50 cents would be very much of an object, but some of our boys do such things sometimes, just for the mischief or fun, as they term it. The smoker is intended as a sort of pledge to those who make some sort of sacrifice in breaking off. Now, if you are not one of the number we think the general effect would be better for you to pay for your smoker.

HOW TO GET A SMOKER.

I have been exercising my mind how to get a smoker. I can't promise to give up tobacco, because I never use it, nor write, as many seem to do, "Please send me a smoker, and I will quit tobacco; but if you don't, I won't." I think the same thing like this ought to fetch one:

Friend Root:—I want a smoker. I don't use tobacco; can't bear the vile stuff, or to be with those who do; but if you don't send one I'll take to it. I know it will make me sick—perhaps kill me—then you will have my death to answer for, and also the sufferings of a large family left to the tender mercies of a cold world, and all for the sake of a smoker.

There! that's as good as some of them.

Hondo City, Tex. G. E. HAILES.

Friend H., there is a truth in what you say, although I think you have overdrawn it a little; and, besides, are you not a little uncharitable toward your fellow-men who are slaves to a bad habit? Are you not afraid that you are blocking the wheels of progress in a good cause?

WHAT TO DO IN JULY.

A. I. ROOT TALKS TO THE FRIENDS ABOUT HONEY-PLANTS, GARDENING, AND THE PLANT-BUSINESS IN GENERAL.

SO far as the bees are concerned, Ernest and the rest of them will occupy that field. I will speak especially of honey-plants. Buckwheat may be sown at any time this month, and will not only give a crop of honey if the season is favorable, but a crop of grain also; but I presume the sooner it is put in, the better. Borage will give a crop of blossoms if sown now; but I haven't any idea that the bees will get honey enough from it to pay for the trouble of sowing. It may be worth all it cost you, however, to see the bees work on it. Catnip, dandelions, and figwort, can be sown now. They will not blossom this year, however, but will make good roots for early blossoms next year. Mignonette, mustard, portulacca, Rocky-Mountain bee-plant, and spider-plant, will probably give some blossoms if the seed is sown now, but not as much as if sown earlier. Seven-top turnip may also be sown now or later, to blossom next spring. Now is just about the time to sow rape. The only trouble is the little black flea, or "Jumping Jack," as it is called. Although these were very bad with us in the spring, on the cabbages, turnips, and all of that family, I am very glad to say that just now there is not one to be seen anywhere; and our radishes, just up, are as bright and green as new dollars—not an insect-bite either on the upper or under side of the leaves. This is probably on account of the abundant rains. If this state of affairs continues, rape would give a large crop of blossoms for honey and seed besides. I presume alsike and other clovers sown now would make a good root, and stand safely over winter. Although we have not had much experience in sowing alsike as late as July, we have several seasons tried sowing it in September and October, but the winter has killed it out every time. As alsike is seldom sown alone by itself, it has not, as a general thing, been tested very much until we commenced sowing fall wheat. I believe it makes a very satisfactory stand when sown with wheat that is put in early.

WHAT CAN THE MARKET-GARDENER PLANT IN JULY, AND GET A CROP?

Lots of things. He can sow asparagus-seeds, and get little plants to sell next spring. He can sow all kinds of beans, and get a crop, except the Lima and late pole beans. All kinds of beets do splendidly, when sown in July. He can not very well sow cabbage-seed and get good cabbages, unless, indeed, it is the very early kinds, such as Early Wakefield and Early Summer. But he can put out plants during the whole month; the same with cauliflower. Carrots do nicely when the seed is sown in

July—sometimes better than when sown later. White Plume celery, even if the seed is sown as late as July, will give a nice crop if the weather and soil are favorable. For other kinds of celery, July is the month for setting the plants in the field. All of the early sweet corns will give a good crop, as a rule, if planted almost *any time* in July. Cucumbers for pickles, are sown more in July than in almost any other month. Lettuce, as a rule, does not *sell* much during this month. But if you sow seeds now they will make plants just right for lettuce to sell in the fall. See what our friend Terrell did with lettuce in the fall, on page 306. Onion-seed may be sown for sets. Parsnips will do fairly as late as this. Pepper-plants may be put out now, but it is too late to sow the seed so as to get much of a crop. Early Ohio potatoes planted during the fore part of July will usually give a crop, if the soil and weather are favorable. Radishes will do splendidly if you can avoid the black flea, mentioned in our remarks in regard to rape. Oyster-plant and spinach will give a fair crop if sown now. Summer squashes will do well if you have a market for them so late. Other kinds will hardly escape the frost. Tomato-plants may be set, with the prospect of a fair crop, especially if frosts hold off. Last, but not least, come turnips. The old adage runs—

> The 25th of July,
> Be the weather wet or dry.

But so much depends on the season that we make sowings all through the month. It is quite an interesting experiment to sow a great number of kinds, and see which does best in your soil. Whenever a piece of ground can be cleared off, get in turnips. If you want to see them boom, plow out deep furrows, and fill them with manure. Then with a shovel-plow throw the fine earth over the manure,* and sow your turnips right over it. The more you mix the manure and fine the soil, the better. Read friend Martin's instructions for sowing turnips, on page 304.

PUTTING OUT STRAWBERRIES IN JULY.

If any of you enjoy playing with strawberries as I do, now is the great month to do it. Plants that are rooted during this month, and set out in rich ground, heavily manured, will do wonders. This 28th day of June we are snipping off runners, some of them being rooted slightly, and some of them not. These we throw into a pail of water, after which a small boy is to clip the runner off. They are then planted in our best ground for plants, exactly as we have explained to you the way we prick out our celery-plants, etc. We keep them wet until they take root, and cover them with cloth frames, when the sun shines, and in two or three weeks we have excellent well-rooted plants, to fill orders. We expect to sell strawberry-plants from now until the ground freezes.

By the way, what do you think our plant-garden (a piece of ground less than 100 feet square), which I have told you about a good many times, has brought us in during the past spring? Why, something like $250; and nearly all of the plants have been sold to our immediate neighbors. When there comes a rainy day we have our plant-garden full of customers, and it has seemed to me that the folks who buy plants are almost always intelligent and nice-looking men and women. Now, whenever you want your old friend A. I. Root to tell you about his plants and garden-stuff, just indicate it when you write to us. True, I have ended my book, "What to Do," etc., but it is a little hard to stop talking on a subject I love so well.

OUR OWN APIARY.

CONDUCTED BY ERNEST R. ROOT.

THE PRESENT HONEY-FLOW.

IT is now June 26, and there is but very little honey in the hives. Brood-rearing has been progressing quite extensively, and this, together with the fact that the colonies are quite strong, has helped somewhat to reduce the amount of honey in the hives. In our locality, so far the usual amount of nectar does not begin to average as well as it usually does. Conditions of weather, hot days and nights, good rainfalls about once in two weeks, have, for some reason or other, failed to cause the secretion of nectar in the usual quantities. There is an abundance of white clover in spite of the drouth of last year and the predictions that, in consequence, there would be little or no white clover. As nearly as I can estimate, I should judge there is about five pounds of honey to each of our colonies, on an average. There is hardly a capped cell in the apiary, to say nothing of thinking of putting on surplus-receptacles.

We hear people complain that the failure of the honey-crop was owing to drouth or an excess of rain, or some other cause beyond our control. This year, so far as anybody can tell, we have had all the favorable conditions one could wish. During one or two seasons we have had considerable dry weather—so much so that farmers and everybody began to complain, and yet the season closed up with the usual amount of honey. Now, the point I am getting at is this: Do the conditions of weather really make so much difference as we have been in the habit of supposing?

LATER.

June 28.—The prospects are now considerably more favorable. Strong colonies have begun to whiten the tops of their combs, and in some cases capped honey is found. The weaker colonies have not begun to average as much in proportion. If the weather will only brighten up, we shall probably get some more honey from clover. Basswood has not opened just yet, and we may get a good flow from this source.

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*I have just this present season learned how to use the shovel-plow so as to throw the dirt either to the right or to the left, as you may wish. Simply tip it on its side, holding it by one handle. You can make it cover potatoes, bank up celery, ridge up ground for sweet potatoes, or any thing of the kind. The above arrangement works splendidly for cabbages, celery, etc., when you are late in getting them in.

MORE SWARMING.

Since our last issue we have had considerably more swarming; though, in consequence of the small inflow of honey, it has gradually tapered off. We have somewhat modified the Manum swarming-arrangnment, so that it can be used in securing swarms when the queens are not clipped. We do not clip here, and so Manum's little cage was enlarged to the capacity of about a peck measure. It is made of wire cloth. The mouth or top is 10 inches square, properly stiffened with ¼-inch round iron. Toward the bottom it tapers so that it assumes the form of an inverted pyramid. To one side of the top is hinged a square wire-cloth cover. The whole cage, then, is simply a pyramid, the base of which is hinged so as to open and close. This whole cage is next pivoted, small end downward, into a Y, made of $\frac{3}{16}$ heavy wire, the stem of the Y fitting into a hole in the projecting end of the tripod, mentioned and described on page 469. This Y serves a double purpose: At whatever angle the swarming-pole is held, the mouth of the cage will always be upward. Second, the Y acts also as a spring. This was an accidental feature which we have found to be quite valuable. After the swarm has been secured, the cluster is liable to jar off unless it is eased by a long projecting spring while being carried to its location for hiving. The manner of using this instrument will be illustrated by the following incident:

Just as the last form of June 15th GLEANINGS was put on the press, a large swarm arose, circled over our factory backward and forward. I took up the swarming-device which I have just described, and waited for the bees to cluster. For several minutes I was uncertain whether they would go down one of the chimneys or lodge in the cornice of the building. They finally came down the roadway, and for a few minutes obstructed the passage of teams; for we did not think it was safe for horses to go among them, although they were gentle Italians. From here they went over to a lumber-pile and caused more or less disturbance to those who were piling up boards. Without finding any suitable place for clustering, they returned and began to center toward a limb on a basswood in front of the factory, the limb being about 12 feet from the ground. With swarming-device in hand I waited until the bees had formed a full-sized bunch. With the lid of the inverted pyramid turned back, I gently thrust the cluster into its mouth. When the swarm was entirely inclosed, an assistant, with a pole to which was attached a hook, gave the limb to which they adhered a sharp quick jerk. This jarred perhaps nine-tenths of the bees into the cage. Before they could recover themselves, the latter was lowered to the ground and the lid closed before they had time to rise. The cage was then elevated to the point where the remaining bees were flying thickest. The legs of the tripod were then stuck in the ground, and, with folded arms, we watched the speedy harvesting of the swarm. Our proof-reader said, after reading so much about swarming, but seeing none of it, that it was a most refreshing sight to him to see the perfect control which a person has over a swarm by the use of this simple instrument. The remaining bees soon clustered on the outside of the cage, and I had the intense pleasure of lifting up the tripod, folding its legs to the main arm, and of carrying the bees and all to the hive where they were to be permanently located. Without this swarming-arrangement we should have had some difficulty in getting the swarm, as the limb on which they clustered was located in and among the branches, quite inacessible to one mounted on a step-ladder, or even to one perched in the tree itself.

We have been using this swarming-arrangement for the last week, and the boys are loud in their praise of it. Sometimes we manage to dump every bee in the cage, from a cluster. With such a swarming-arrangement I should very much prefer to let the queen's wings go unclipped; for the bees would then cluster sooner, and, when clustered, are as good as hived. We have quite abandoned the corn-popper, as it does not hold enough bees; and we have therefore decided to send out swarmers with a large inverted pyramid cage. With this there is no necessity for clipping a queen—no danger of losing her under the hive or in the grass.

PROFUSE SWEATING.

About a year ago, I stated that, in order to prevent profuse sweating in the apiary, I always wore a light woolen shirt (or, more correctly speaking, half wool and half cotton) under my white shirt. My better half, in spite of some protest on my part, finally induced me to try light gauze underwear instead. I did so, and I believe I never sweat so in all my life. For the first time in my experience I literally mopped my face. I finally said, one evening, I guessed I would take that gauze shirt off and put on a good substantial woolen one instead. As usual, I met some protest, but I was allowed to have my way. Accordingly next morning, when the day was equally warm, I went out prepared for another hot spell. Profuse sweatings ceased almost entirely. We have had several hot days since, yet I have not begun to sweat or feel as uncomfortable as I did with that light gauze wear. I know now, without any doubt, that a moderately heavy woolen shirt, half cotton and half wool, in summer, keeps *me* cooler, and prevents excessive perspiration. Now, I am not going to say that everybody is like me in this respect; but I do feel quite certain that a few—perhaps I might say quite a large number—would be cooler and more comfortable with a little light underwear, such as I have described. Why is it that workers in blast-furnaces and foundries, and other places where the work is around melted metals, wear woolen shirts? It is because they are protected more. Is not the back of an apiarist exposed to a sun hot enough to warrant him in putting extra protection on his back?

I have been wondering whether C. C. Miller has tried light underwear this season in the apiary; and if so, what was the result?

GLEANINGS IN BEE CULTURE.

Published Semi-Monthly.

A. I. ROOT,
EDITOR AND PUBLISHER,
MEDINA, OHIO.

TERMS: $1.00 PER YEAR, POSTPAID.

For Clubbing Rates, See First Page of Reading Matter.

MEDINA, JULY 1, 1888.

Great peace have they which love thy law.—PSALM 119: 165.

WE have to-day 8303 subscribers—a gain of 57.

BASSWOOD JUST OUT.

THIS 30th day of June, bees discovered a little cluster of blossoms on one of the basswood-trees that skirt the road in front of our dwelling. Only a dozen or two buds were opened, but the bees were having quite a rejoicing over them. The trees are loaded with buds. What shall the harvest be?

DEATH OF THE INVENTOR OF THE HONEY-EXTRACTOR.

WE have just received word from friend Dadant, informing us of the death of Major von Hruschka, the inventor of the honey-extractor. He died in Venice, Italy, on the 11th of May last. In our next issue we hope to give a portrait of this great benefactor to all bee-men, with a biographical sketch.

ANOTHER IMPORTATION OF QUEENS.

WE have just received an importation of 25 queens, direct from sunny Italy. All came through alive except one. All are now successfully introduced by the Peet-cage process. The queens are of good color, and will probably duplicate themselves in their daughters. Perhaps we should remark right here, that the imported queens are not introduced in our own apiary. Several of our customers have been afraid to purchase queens of us on account of foul brood. We would say, that all the queens that we send out by mail, as well as bees and queens by express, come from Neighbor H. or one or two Southern breeders, who never had foul brood. Prices same as usual.

THE NEXT PLACE OF THE MEETING OF THE N. A. B. K. S. DEFINITELY SETTLED.

THE following letter from Dr. A. B. Mason has just come to hand, and explains itself:

Friend Root:—A vote of the members of the North American Bee-Keepers' Society has been taken in regard to changing the place of its next meeting from Toledo to Columbus. All but six have voted, and all but one have voted for the change. So the next convention will be held at Columbus. I sent plans to the Centennial Bee and Honey Building to Columbus last week, at the request of the Executive Board, and it is probable that it will be about 36 x 80 ft. square, and most of the space has been applied for. A. B. MASON, Pres.

The thing is now settled. We are especially pleased to notice that the space allotted has been nearly all applied for.

SELLING THIS YEAR'S CROP OF HONEY.

IF you have already secured a crop of honey, and your prospects are good for getting more honey, do not be in haste to "lump it off." From reports received, it would seem that the yield is not going to be as heavy as the average. Still, the next few days may change the aspect of things somewhat—at least we hope so. In the next issue we shall have another batch of honey statistics. The questions which we have propounded will be as follows:

A. What is new comb honey selling at in your vicinity?

B. What is new extracted honey selling at?

C. What per cent of an average crop of honey do you estimate has been secured in your vicinity this season? Please answer this question simply by per cent; for instance, 50, 75, 175, or 200 per cent.

D. How many pounds of honey, both comb and extracted, have YOU taken from your own bees, and from how many colonies so far?

E. Was the season with you this year good, average, poor, or bad?

The replies to the questions will show whether there will be a scarcity of honey, and at what price it is retailing in various parts of the United States. These next reports will be a little early for some sections of the country, perhaps; but we want to know as *soon as possible* which way the straws blow.

I, WE, US, OUR, ETC.

THE *Bee-Keepers' Review* for June 10 takes up this question that was discussed considerably perhaps ten years ago; and, by the way, they give your old friend A. I. Root rather more kind notices in regard to the matter than he deserves, I fear. When I commenced saying *I* instead of the editorial *we*, it was simply because I distinctly wished it understood that the position I took at the time was my own, individually. I put a good many thoughts into print that my friends right around me do not indorse; and when I do this I greatly prefer to say I, so that our readers shall understand that it was A. I. Root's individual opinion, and that he alone was responsible for it. When I mean *we* I prefer to say we. For instance, had you been out in the strawberry-patch after six o'clock last Saturday, I should have said, "See, we have picked all these berries since six o'clock." The *we* would include Caddie and her cousin Mabel, and a number of other juveniles. An hour later, when I was feeding crackers to the carp, from my hand, I should have said, "There, I have got them so tame by closely cultivating their acquaintance for only three or four days," meaning that I did it myself alone. In fact, the only way I *could* get acquainted with the fish was to go off by myself, when nobody else was around.

CUT-WORMS, SQUASH-BUGS, ETC.

FENCING THEM OUT, AND DRIVING THEM OUT WITH LIQUID MANURE, ETC.

SINCE my advice in regard to the cut-worms on page 512, the following suggestions have come in:

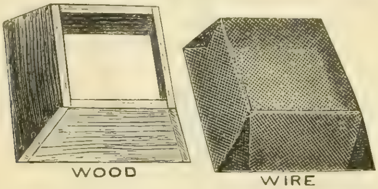
Friend Root:—You advise a flock of chickens, which has to be raised before the cut-worm comes. Try wrapping good paper around the plants, and let the top flare out from the plant, so the worm can't climb up, and let it extend a little into the ground. This can be done when they are set out, with little trouble. J. D. ADAMS.

Nira, Ia., June 24, 1888.

Mr. Root:—Mr. D. W. C. Matthews wishes to know if there is any way to prevent cut-worms from destroying cabbage, tomato, and other young plants. It is the easiest thing in the world. If he will take some old tin cans and cut out the bottoms and slip them over the plants while small, and press firmly into the soil, I think he will have no more trouble, as I have never known a plant to be destroyed when treated in that way. If I am not mistaken, the worm crawls along on the surface of the ground at night, and, after cutting off the plant, burrows himself near the stump. Of course, tin cut into strips about as wide as the tin separators used in your hives, and folded so as to be nearly like a can, would be just as good. E. D. BARTON.

East Hampton, Ct., June 23, 1888.

Thank you, friends. Friend Barton, however, seems to overlook the fact that our transplanting-tubes are just the thing for this purpose, and I believe it has been mentioned before. The only trouble is in having either paper or tin tubes enough for a whole field of melons, cabbage, tomatoes, and the like. Still, if the cut-worms are very bad I suppose it would pay to have tin tubes enough to save a whole acre of plants, especially the tomato-plants; for they are so far apart it would not take very many, and the *early* crop will generally sell for enough more to pay for the tubes a good many times over. While on the subject of insect-enemies, we give you a cut below of the wire-cloth bug-protector.



THE BUG-PROTECTOR, AND HOW TO MAKE IT.

On page 424, June 1st issue, I promised to give you a cut of the above arrangement. The wooden box is the form on which the wire cloth is folded. The top of the box is a foot square. The sheet of wire cloth is 18 inches square. Any one can, in a few minutes, learn to fold up the sheets of wire cloth, as shown in the cut. We also use a smaller size, made of a piece of wire cloth only a foot square. This answers for single plants, or where the hill is small. These protectors saved our vines when those all around us were almost entirely destroyed. At first we were somewhat puzzled to find bugs inside of the protector, and even after we were sure we had destroyed every bug before putting it on. The explanation is, that the bugs either burrow in the ground or hatch out in the ground, I do not know which. Can Prof. Cook tell us? But if you go around the second time, and destroy every bug, and dig around the stems of the plants, to be sure none are lurking there, you will have no further trouble. Digging around the stems of the plants will be worth all it costs, in making the plants grow. The bugs last with us only ten days or two weeks; and if you are busy, and do not get around to take the boxes off, the squashes will just hoist them up, holding them as if it were an umbrella. At this stage you can gather your screens, and store them away until wanted; then with a sharp steel rake work the soil up fine for 18 inches around the hill, and pull up fine dirt enough to make a dust blanket, or mulch, such as I told you about last year, and your crop is almost a sure thing. By the way, a neighbor of mine told me yesterday he had got something as good or better than the wire protectors. His plan is simly to drench the vines, as soon as they show above ground, with *liquid poultry manure.* This does not kill the bugs—oh, no! but they are so disgusted that they go off holding their noses (this latter may have been drawn somewhat from imagination), and then they look out for your neighbor's vines, where he does not make things so unpleasant. Please remember, that the time to get a good market and a good price for your melons, squashes, etc., is when the bugs are sure to eat up all that your *neighbors* may plant.

THE BEE-KEEPERS' REVIEW

for June is now out. The special topic is that of "Removing Queens near the Close of the Harvest." It is contributed to by such men as E. France, G. M. Doolittle, Prof. Cook, F. Boomhower, James Nipe, and Dr. Miller. It also contains a long editorial in which the editor gives in detail his experience in "feeding back" 13,000 pounds of honey to secure the completion of unfinished sections. "Feeding back" is to be the special topic of the July No.; and contributions on this subject will be gladly received. All such as are used will be paid for.

Price of the REVIEW, 50 cts. a year. Samples free. Back numbers can be furnished. 10tfdb

THE PRODUCTION OF COMB HONEY.

A neat little book of 45 pages; price 25 cts. The REVIEW and this book for 65 cts. Stamps taken, either U. S. or Canadian. Address

W. Z. HUTCHINSON,
613 Wood St. **Flint, Mich.**

☞In responding to this advertisement mention GLEANINGS.

75 Colonies of Italian and hybrid bees for sale, or trade for land; in A. I. Root's S. hives, 10 frame, L. F. Nearly all wired, and nice straight combs. Every thing on the most improved modern principles. I am changing climate for my health, is the reason for selling.

E. SANDFORD, Nokomis, Ill.

Untested Italian Queens,

Ready to ship by return mail. Price 90 cts. each, $10.00 per dozen. Tested queens, $1.50 each. All reared from choice stock.

Full colonies with tested queen, each, $5.00; discounts on large orders. Hives contain 8 L. frames, filled with good straight worker combs. Send along your orders, and be convinced that I can please you. Address O. H. TOWNSEND,
Alamo, Kal. Co., Mich.

☞In responding to this advertisement mention GLEANINGS.

Unparalleled Offer!

Selected tested queens for June, July, and Aug., only $1.00; 2-frame nuclei, sel. tested queens, $2.50 each. If you mean business, address, for what you want, S. F. REED, N. Dorchester, N. H.

LOOK HERE!

I will sell Italian queens from one of A. I. Root's imported queens. One untested queen, $1.00. Tested queen, $2.00. Select tested queen, $3.00. I also give a box of my pure vegetable liver pills free with each queen. Address

DR. L. L. LOOMIS,
6-17b Pemberville, Wood Co., O.

☞In responding to this advertisement mention GLEANINGS.

PURE ITALIAN QUEENS.

Untested, $1.00; tested, $2.00; select tested, $2.50; standard breeders, $3.00. Bees in cages or nuclei, $1.00 per lb. **R. H. CAMPBELL,**
11-16db **Madison, Morgan Co., Ga.**
☞In responding to this advertisement mention GLEANINGS.

HOW TO RAISE COMB HONEY. See Foster's advertisement on another page. 4-15db

ITALIAN QUEENS CHEAP.

Untested, in June, 90c; tested, $1.50; after July 1st, untested, 75c; tested, $1.25. Satisfaction guaranteed. 11-13d **R. W. TURNER, Medina, O.**

O The BUYERS' GUIDE is issued March and Sept., each year. It is an encyclopedia of useful information for all who purchase the luxuries or the necessities of life. We can clothe you and furnish you with all the necessary and unnecessary appliances to ride, walk, dance, sleep, eat, fish, hunt, work, go to church, or stay at home, and in various sizes, styles and quantities. Just figure out what is required to do all these things **COMFORTABLY**, and you can make a fair estimate of the value of the BUYERS' GUIDE, which will be sent upon receipt of 10 cents to pay postage,

MONTGOMERY WARD & CO.
111-114 Michigan Avenue, Chicago, Ill.
☞In responding to this advertisement mention GLEANINGS.

NEARLY THIRTY TONS
—OF—
DADANT'S FOUNDATION
SOLD IN 1887.

It is kept for sale by Messrs. T. G. Newman & Son, Chicago, Ill.; C. F. Muth, Cincinnati, O.; Jas. Heddon, Dowagiac, Mich.; F. L. Dougherty, Indianapolis, Ind.; B. J. Miller & Co., Nappanee, Ind.; E. S. Armstrong, Jerseyville, Ill.; E. Kretchmer, Coburg, Iowa; P. L. Viallon, Bayou Goula, La., M. J. Dickason, Hiawatha, Kansas; J. W. Porter, Charlottesville, Albemarle Co., Va.; E. R. Newcomb, Pleasant Valley, Dutchess Co., N. Y.; D. A. Fuller, Cherry Valley, Ill.; J. B. Mason & Sons, Mechanic Falls, Maine; G. L. Tinker, New Philadelphia, O., Jos. Nysewander, Des Moines, Ia.; C. H. Green, Waukesha, Wis.; G. B. Lewis & Co., Watertown, Wis.; J. Mattoon, and W. J. Stratton, Atwater, O., Oliver Foster, Mt. Vernon, Iowa; C. Hertel, Freeburg, Ill.; Geo. E. Hilton, Fremont, Mich.; J. M. Clark & Co., 1409 15th St., Denver, Colo.; Goodell & Woodworth Mfg. Co., Rock Falls, Ill.; J. A. Roberts, Edgar, Neb., E. L. Goold & Co., Brantford, Ontario, Canada; J. N. Heater, Columbus, Neb., and numerous other dealers.

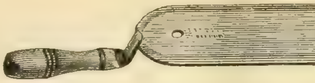
Write for *free* samples, and price list of bee supplies. We *guarantee every inch* of our foundation *equal to sample in every respect*. Every one who buys it is pleased with it.

CHAS. DADANT & SON,
3btfd **Hamilton, Hancock Co., Illinois.**
☞In responding to this advertisement mention GLEANINGS.

J. P. Caldwell, of San Marcos, Tex.

Pure Italian queens.	April.	May.	Jun. to Oct.
Select tested	$2 75	$2 25	$1 75
Tested	1 75	1 50	1 25
Untested	1 00	90	75
Six untested	5 00	4 40	3 75
Twelve untested	9 50	8 00	7 00

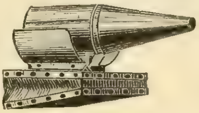
All queens will be shipped in cages which answer the double purpose of an introducing and shipping cage. Address J. P. CALDWELL, San Marcos, Tex, 7-18db Please mention GLEANINGS.
☞In responding to this advertisement mention GLEANINGS.



Bingham & Hetherington's Honey-knife.

Old reliable Bingham Bee-Smokers and Bingham & Hetherington Honey-knives. They last 8 years; never clog up or go out. Send card for free circular, descriptive of the best and cheapest tools to use.

THEY LAST.



ADDISON, VT.—Have one of your smokers, good yet, used 6 years. E. J. SMITH.

SILVER CREEK, KY.—I have had one of your smokers 3 years, and it is as good as new. T. W. HUDGENS.

ELM GROVE, MASS.—Have one I have used six seasons, good yet. F. M. TAINTOR.

SPRINGFIELD, O.—Your smoker good yet, and used four seasons. WM. W. BURRET.

LONE TREE, MO.—I have used one of your bee-smokers five years, and it is good yet. LEE EMRICK.

PRICES:

		By mail, postpaid.
Doctor smoker (wide shield)	3½ inch	$2 00
Conqueror smoker (wide shield)	3 "	1 75
Large smoker (wide shield)	2½ "	1 50
Extra smoker (wide shield)	2 "	1 25
Plain smoker	2 "	1 00
Little Wonder smoker	1¾ "	65
Bingham & Hetherington honey-knife		1 15

TO SELL AGAIN, apply for dozen or half-dozen rates. Address T. F. BINGHAM, or
9tfd BINGHAM & HETHERINGTON,
Mention GLEANINGS. ABRONIA, MICH.

Oliver Foster, of Iowa.

Italian bees, 60 cts. per lb. in July, to $1.00 in April. Pkgs. with queens, brood, etc., cheap. *No foul brood near.*
BEE SUPPLIES.—Best sections, cases, and hives. Catalogue free. Send 5 one-cent stamps for pamphlet, "HOW TO RAISE COMB HONEY,"—chuck full of practical information "in a nutshell."
4-15db Address OLIVER FOSTER, Mt. Vernon, Ia.
☞In responding to this advertisement mention GLEANINGS.

FREE! My catalogue of Bees, Queens, Apiarian Supplies, Standard Poultry (7 varieties), Japanese buckwheat, Green Mountain and Empire State potatoes. My stock is first-class. You should see my prices for 1888 before you order. CHAS. D. DUVALL,
5tfdb Spencerville, Mont. Co., Md.
☞In responding to this advertisement mention GLEANINGS.

FOLDING BOXES.

10-21db.

Enclose your COMB HONEY in our Cartons. Prices Reduced for 1888. Sample 5c. 20 page Catalogue of Glass Jars, Honey Labels, etc., FREE. Send for it. Address
A. O. CRAWFORD, S. Weymouth, Mass.
☞In responding to this advertisement mention GLEANINGS.

MUTH'S
HONEY-EXTRACTOR.

SQUARE GLASS HONEY-JARS,
TIN BUCKETS, BEE-HIVES,
HONEY-SECTIONS, &c., &c.
PERFECTION COLD-BLAST SMOKERS.

Apply to CHAS. F. MUTH & SON,
CINCINNATI, O.

P. S.—Send 10-cent stamp for "Practical Hints to Bee-Keepers." 1tfdb
☞In responding to this advertisement mention GLEANINGS.

That Pittsfield Smith

Offers the Following Real Bargains for this Month:

BLACK BEE-VEILS, ALL GRENADINE, WITH ELASTIC TOP AND BOTTOM, 40 CENTS EACH, POSTPAID!

HARVEY W. PEACE COMBINATION SAWS, WITH 24-INCH SQUARE, RULE, AND STRAIGHT-EDGE, ONLY 55 CENTS EACH. IF BY MAIL, 40 CENTS EXTRA.

Also one of the Largest PRICE LISTS of the Season Mailed Free.

Address Plainly **CHAS. H. SMITH, Pittsfield, Mass., Box 1087.**

☞In responding to this advertisement mention GLEANINGS.

CARNIOLAN · QUEENS.

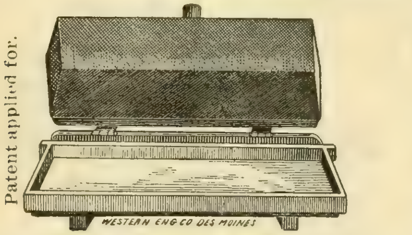
Gentlest bees known; not surpassed as workers, even by the wicked races.

Imported queens, "A" grade, $8.00. Tested, $4.00. Untested, $1.00; ½ doz., $5.00.

Never saw foul brood. Ask on postal card for circular.

S. W. MORRISON, M. D.,
Oxford, Chester Co., Pa.

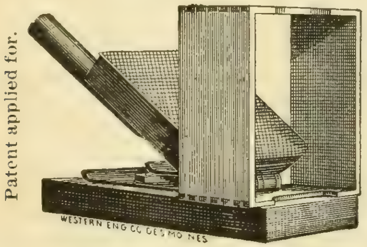
☞In responding to this advertisement mention GLEANINGS.


Patent applied for.
WESTERN ENG CO DES MOINES

Bittenbender's Foundation Fastener

For Flat Top-Bar Brood-Frames.

Price $1.50


Patent applied for.
WESTERN ENG CO DES MOINES

Bittenbender's Foundation Fastener for Sections

Price 75 cents; by mail, $1.00.

Send for illustrated price list and see advantages. Price list free on application.

J. W. Bittenbender, Knoxville, Iowa.

☞In responding to this advertisement mention GLEANINGS.

CHENANGO VALLEY APIARY.

HEADQUARTERS IN N. Y. STATE

For superior yellow ITALIAN QUEENS. In order to introduce my strain of bees, I offer one-frame nuclei, with untested queen, for $1.50 each, Langstroth frame; untested queen, $1.00; select tested, $2.00. Reference if desired. Send stamp for reply, to A. I. Root, or National Bank of Sherburne. Send for free circular. MRS. OLIVER COLE,
6tfdb Sherburne, Chenango Co., N. Y.

☞In responding to this advertisement mention GLEANINGS.

DADANT'S FOUNDATION FACTORY, WHOLESALE AND RETAIL. See advertisement in another column

---

BEES, Queens, Hives, Given Comb Foundation, Apiarian Supplies, German Carp, Small-fruit Plants. Send for catalogue free. E. T. Flanagan, Belleville, Ills.
1-24db.

ITALIAN QUEENS.

Untested, 75 cts.; tested, $1.25. Untested, per dozen, $8.00. **I. GOOD,**
10tfdb **Sparta, White Co., Tenn.**

☞In responding to this advertisement mention GLEANINGS.

New Orleans Apiary.

I will mail guaranteed pure Italian queens for 75 cents each by return mail. Light, large, and prolific. Address
12d **J. W. WINDER, New Orleans, La.**
Care of L. B. Thompson, Jackson Pass. Agt.

Samples of the American Apiculturist

sent free. Also our price list of the best strain of pure Italian queens. Address 9tfdb
APICULTURIST, Wenham, Essex Co., Mass.

FOUND AT LAST!

A preservative that will keep eggs perfectly fresh the year round. It costs a little over a cent a dozen to preserve them. For particulars, address 12tfdb

DR. A. B. MASON, Auburndale, O.

☞In responding to this advertisement mention GLEANINGS.

WRITE TO JOHN CALLAM & CO.,

LUMBER DEALERS, KENTON, OHIO,

—FOR PRICES ON—

BEE-HIVES, SECTIONS,

And General Supplies for Bee-keepers

New Factory. Low Prices. Good Work.
3-14 db

☞In responding to this advertisement mention GLEANINGS.

TESTED ITALIAN QUEENS, $1.00 each; untested, 75c each; three for $2.00. Daughters from one of D. A. Pike's Albino queens, same price. Three-frame nucleus, with tested queen, $3.00. Bees per pound, 75c. **I. R. GOOD,**
11tfdb **Nappanee, Ind.**

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Black and Hybrid Queens For Sale.

For the benefit of friends who have black or hybrid queens which they want to dispose of, we will insert notices free of charge, as below. We do this because there is hardly value enough to these queens to pay for buying them up and keeping them in stock; and yet it is oftentimes quite an accommodation to those who can not afford higher-priced ones.

50 mismated Italian queens for sale at 30c each by return mail. Good layers. Progeny industrious.
J. C. WHEELER, Plano, Kendall Co., Ill.

We have a few hybrid queens, which we will sell at 40c each. Very prolific. Safe arrival guaranteed.
G. W. CRIBBS & SON, Heshbon, Indiana Co., Pa.

FOR SALE.—Two mismated Italian queens, large and fine, 35c each. CHAS. MCCLAVE, New London, O.

I shall have about 40 black and hybrid queens for sale this month at 25c. Y. P. CLARE,
Oliver's Ferry, Ont.

I have 8 black and also some hybrid queens for 25c each. A. W. SPRACKLEN, Cowden, Shelby Co., Ill.

I have 15 or 20 hybrid queens that I will send by return mail to any address, for 25c each. Address
WALTER MARTIN, Cameron, Ind. T.

Hybrid queens for sale at 25c each. Safe arrival guaranteed. J. H. JOHNSON,
Middaugh, Northampton Co., Pa.

50 nice black and hybrid queens for sale at 30c each, fine introducing-cage included. WM. H. CLARK,
St. Albans, Vermont.

I have a fine lot of hybrid queens nearly pure, all young; will be shipped in Peet's shipping-cage by mail, and safe arrival guaranteed, at 35c each, or three for $1.00. J. C. FRISBEE,
Suffolk, Nansemond Co., Va.

I have 15 hybrid and black queens for sale, as I am Italianizing; 25c for blacks; 50c for hybrids.
DAVID LUCAS, Jewett, Harrison Co., Ohio.

I have some prolific hybrid queens; will take $1.00 for 4; have also a few black, for which I will take 15c each. WM. BARTH, Petersburg, O.

O. R. Coe, Windham, Greene Co., N. Y., will pay 25 cts. for hybrid queens. 12-13-14d

BEAUTIFUL ITALIAN QUEENS,

from a select imported or a large yellow mother. Untested, $1.00; tested, $2.00. Select tested, $2.25.
12-13-14d W. A. PEEK, HARTWELL, GA.

Wants or Exchange Department.

Notices will be inserted under this head at one-half our usual rates. All ad's intended for this department must not exceed 5 lines, and you must SAY you want your ad. in this department, or we will not be responsible for any error. You can have the notice as many lines as you please; but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale can not be inserted under this head. For such our regular rates of 20 cts. a line will be charged, and they will be put with the regular advertisements.

WANTED.—To exchange choice Italian queens for comb or extracted honey. Correspondence solicited. JAMES F. WOOD,
13tfdb North Prescott, Mass.

WANTED.—To exchange warranted Italian queens, reared from imported mother, for White Leghorn fowls, lop-eared rabbits, or Maltese cats. J. H. GARRISON, 3969 Sarpy Ave.,
14d St. Louis, Mo.

WANTED.—To exchange 8000 basswood sections for nice comb or extracted honey. 14d
A. D. ELLINGWOOD, Milan, N. H.

WANTED.—To exchange Italian bees for a first-class 48-inch bicycle or a foot-power turning-lathe. Engine lathe preferred. 14tfdb
D. S. BASSETT, Farnumsville, Worcester Co., Mass.

WANTED.—To exchange 3¾ boxes 5 x 5 glass and a complete Jones wax-extractor, but little used, for any thing useful. F. D. WOOLVER,
14d Munnsville, Madison Co., N. Y.

WANTED.—To exchange a 50 in. planer tooth saw, and one plain Florence sewing-machine for best offers of 3-frame nucleus, Italian bees, each with fertile queen. W. J. ROW, 12-13d
Greensburg, Westm'd Co., Pa.

WANTED.—To exchange full colonies of bees in L. hives for a good bicycle. 14tfdb
J. V. CALDWELL, Cambridge, Ill.

WANTED.—To exchange one camera, ¼ size, 1 camera stand, 1 fork and dipping-glass, 1 glass funnel, 1 rubber funnel, 1 glass measure; also a full assortment of paints and brushes for painting the pictures; supply of plates and of chemicals, and 1 head-rest. It is a splendid machine for ferrotype work. I have to stop on account of my eyes. I will exchange the above for a foundation-mill, 10-inch size, or offers. W. M. VICKERY,
Hartwell, Hart Co., Ga.

PARTIES having either Carniolan queens mated to Italian drones or Italian queens mated to Carniolan drones would do well to correspond with me. I want about 4 of these hybrids. 14-15-16d
T. K. MASSIE, Concord Church, W. Va.

For Sale.- 50·Colonies ·Italian·Bees,

Strong, on 8 L. frames, with brood and tested queen, in shipping-box, $5.00 each; or will sell bees by the pound. No foul brood. A. A. FRADENBURG,
14tfdb. Port Washington, Ohio.

☞In responding to this advertisement mention GLEANINGS.

A Four-Color Label for Only 75 Cts. Per Thousand!

Just think of it! we can furnish you a very neat *four-color* label, with your name and address, with the choice of having either "comb" or "extracted" before the word "honey," for only 75 cts. per thousand; 50 cts. per 500, or 30 cts. for 250, postpaid. The size of the label is 2½ x 1 inch—just right to go round the neck of a bottle, to put on a section, or to adorn the front of a honey-tumbler. Send for our special label catalogue for samples of this and many other pretty designs in label work.
A. I. ROOT, Medina, Ohio.

HOW TO RAISE COMB HONEY. See Foster's advertisement on another page. 4-15db

HONEY COLUMN.

CITY MARKETS.

KANSAS CITY.—*Honey.*—The stock of old honey on hand in the city is very light, and the sections are all glassed. This style of comb honey, the trade does not like. The demand for new 1-lb. sections (choice white) is good at 15@16 cents, not glassed. Dark ones not looked after; 2-lb. sections and extracted, no demand as yet. *Beeswax*, none in the market.

HAMBLIN & BEARS,
June 28. 514 Walnut St., Kansas City, Mo.

ST. LOUIS.—*Honey.*—No quotable change in market since our last. New crop receipts rather light. Sales moderately active; strained and extracted in barrels, 4½@5½; cans, 4@8. Comb, choice, 13@15. *Beeswax*, prime, 22c.

D. G. TUTT GROCER CO.,
July 10. 206 N. Commercial St., St. Louis, Mo.

BOSTON. — *Honey.* — No change in honey or wax.

BLAKE & RIPLEY,
July 9. 57 Chatham St., Boston, Mass.

CHICAGO.—*Honey.*—Not any changes to report in this market since our last quotations.

R. A. BURNETT,
July 9. 161 So. Water St., Chicago, Ill.

DETROIT.—*Honey.*—No change since last quotations. Very few sales.

Bell Branch, Mich., July 9. M. H. HUNT.

KANSAS.—*Honey.*—No new honey in market. We quote old 1-lb., 16@17 for white; 1-lb. dark, 14@15; white, 2-lb., 15. California, white, 2-lb., 14. Extracted, in cans, 7. *Beeswax.*—None in market.

CLEMONS, CLOON & Co.,
July 9. Kansas City, Mo.

ST. LOUIS.—*Honey.*—We quote you to-day's prices on honey. Extracted, in bbls., good heavy body, for manufacturers' use, 4½; choice bright Western, 5. Very white clover, 5½; in cans, 6@7. Comb honey, choice new 1-lb. sections, white clover, 12½@14; wild flowers, 11@12. *Beeswax*, prime. 22.

W. B. WESTCOTT & CO.,
July 9. 202 N. Main St., St. Louis, Mo.

ALBANY.—*Honey.*—Market unchanged; no new in yet, and very little old. Will be no demand under a month to come.

H. R. WRIGHT,
July 11. Albany, N. Y.

CINCINNATI. -*Honey.*—There is a fair demand for extracted honey, which brings 5@8 on arrival. Demand for comb honey is slow, and prices are nominal. It is offered at 12@15c. for best, in the jobbing way. *Beeswax* is in good demand, and brings 20@22 on arrival for good to choice yellow.

CHAS. F. MUTH & SON,
July 11. Cincinnati, Ohio.

QUEENS FOR SALE. Italian queens, tested, $1.00 each; untested, 75 cts.; mismated, 50 cts.
13-14d L. A. RESSLER, Nappanee, Elkhart Co., Ind.

DADANT'S FOUNDATION FACTORY, WHOLESALE AND RETAIL. See advertisement in another column. 3btfd

Bee-Keepers, Look Here!

To introduce my sections I will sell No. 1 white basswood V-groove 1-piece at $3.00 per M. No. 2, $2.00 per M. Price list free. **J. M. KINZIE,**
12tfdb **Rochester, Oakland Co., Mich.**

☞In responding to this advertisement mention GLEANINGS.

THE REDDEST DRONES

AND BRIGHTEST FOUR-BANDED GOLDEN ITALIAN QUEENS.

For gentleness and working qualities, second to none. Price, untested, $1.00; tested, $2.00; best select tested, $3.00. After July 15th, one-fourth less.
13-14d *L. L. HEARN, Frenchville, W. Va.*

☞In responding to this advertisement mention GLEANINGS.

A RARE CHANCE IN CALIFORNIA.

FOR SALE.—My apiary, and fixtures for producing comb honey. A bee-range unexcelled in California. Nine acres of raisin grapes, $1000 worth of grapes now on the vines. A rare chance for a man of some means to get hold of 320 acres of government land. Address

J. P. ISRAEL,
Olivenhain, San Diego Co., Cal.

☞In responding to this advertisement mention GLEANINGS.

PURE ITALIAN BEES AND POLAND CHINA PIGS FOR SALE. Write for free price list giving full description and particulars. **N. A. KNAPP,**
13-14d **Rochester, Lorain Co., O.**

J. F. Wood IS NOW PREPARED TO send promptly those beautiful Italian queens (every one warranted) that have given such universal satisfaction the past three years, at the low price of 75 cts. each; $4 25 for 6; $8.00 for 12. Ninety-eight per cent of all queens sold last season proved purely mated. J. F. WOOD,
13tfdb *Mention Gleanings.* North Prescott, Mass.

"FEEDING BACK."

There was probably never before gathered together so much reliable information upon the above subject as is to be found in

THE BEE-KEEPERS' REVIEW

for July. If you have, or expect to have, unfinished sections, read this No. If you have failed to make a success of "feeding back," its perusal may show you where you made your mistake. The August issue will be a "Fair No." Price of the REVIEW, 50 cts. a year. Samples free. Back numbers can be furnished.

THE PRODUCTION OF COMB HONEY.

A neat little book of 45 pages; price 25 cts. The REVIEW and this book for 65 cts. Stamps taken, either U. S. or Canadian. Address

W. Z. HUTCHINSON,
613 Wood St. **Flint, Mich.**

☞In responding to this advertisement mention GLEANINGS.

A HOME IN THE SUNNY SOUTH.

350 acres, 1½ miles from Cuthbert, the city of schools and churches. Land comparatively level. Watered by never-failing springs and a creek; 2 carp-ponds; 29 stands of bees; 4 new 2-room tenant-houses, with well at each. Seven varieties of fruit. Dwelling has four plastered rooms. No malaria. Titles perfect. Price $4000; one-half cash, balance 8 per cent. L. A. DUGGAN,
14-16-18d Cuthbert, Randolph Co., Ga.

☞In responding to this advertisement mention GLEANINGS.

BEE-VEILS, 35 CENTS, complete, equal to the best. Satisfaction guaranteed. Sent postpaid. 15d G. BACON, Bucyrus, Ohio.

READ THIS!

I will sell one-story Simplicity hives with portico and a two-frame nucleus, with queen, golden Italian, tested, through the season, for $2.50. Untested queens, $1.00; $10.00 per dozen.

MRS. OLIVER COLE,
Sherburne, Chenango Co., N. Y.
Chenango Valley Apiary. 6tfdb

☞In responding to this advertisement mention GLEANINGS.

200 POUNDS OF BEES

at 50 cts. a pound. Tested Italian queens, $1.00; untested, 60 cts. Hybrid, 30 cts.
14d GEO. L. JONES, GRAND RIDGE, LA SALLE CO., ILL.

☞In responding to this advertisement mention GLEANINGS.

GLEANINGS
IN
BEE CULTURE.
DEVOTED·TO·BEES·HONEY·&·HOME·INTERESTS.
F.A.Whiting

Vol. XVI. JULY 15, 1888. No. 14.

TERMS: $1.00 PER ANNUM, IN ADVANCE; 2 Copies for $1.90; 3 for $2.75; 5 for $4.00; 10 or more, 75 cts. each. Single number, 5 cts. Additions to clubs may be made at club rates. Above are all to be sent to ONE POSTOFFICE.

Established in 1873.
PUBLISHED SEMI-MONTHLY BY
A. I. ROOT, MEDINA, OHIO.

Clubs to different postoffices, NOT LESS than 90 cts. each. Sent postpaid, in the U. S. and Canadas. To all other countries of the Universal Postal Union, 18 cts. per year extra. To all countries NOT of the U. P. U., 42 cts. per year extra.

WORK IN SUPERS OVER CONTRACTED BROOD-NESTS.

DO WE WANT OUR SUPER TO EXTEND OVER DUMMIES?

IN contracting the brood-chamber at the time of putting on supers, the principal trouble met with is, that when six brood-frames or less are used, the surface immediately over these frames is less than the size of the super generally placed over it. As a result of this, one or both sides of the super have for a certain distance no brood-frames under them; and in the sections which have no brood-frames under them the bees sometimes, if not always, are rather slow about working.

Mr. Geo. A. Wright, of Glenwood, Pa., suggests a plan which may work well. It is, to have in the center of the hive four shallow frames whose combs are 2¼ inches in depth, and underneath these four frames a dummy or dead-air chamber. As these four shallow frames are equivalent to about one frame of full depth, their use is equivalent to a contraction of three frames in the brood-chamber, without any contraction of the surface space occupied by bees immediately under the super. "At the close of the honey-harvest the dummy can be placed at one side, the full-sized brood-combs at the other side, and the bees fed, if necessary, for winter."

I have used something just a little on the same plan. I took common dummies made of inch lumber, cut out a triangular piece at the upper part of each dummy, then took a section from which the honey had been extracted, cut across both diagonals, thus making four triangular pieces of the section, and inserted one of these pieces in each dummy. This had the advantage that, at the close of the season, these dummies could be laid aside, the little honey that was in them being previously cleaned out by the bees. Mr. Wright's plan has the advantage that bees would be more evenly distributed under the whole of the super. Just how important this advantage would be, I do not know; for in either case the bees would work equally well in both sides of the super, consequently there would be little fear of their neglecting the middle. An objection to either of the plans here given is the extra paraphernalia to be in the way. If the four small frames of friend Wright are to be left for the bees to occupy at one side through the winter, the bees are packed in less compact quarters. This might be remedied by having the four small frames made of thin stuff, so that, at the close of the season, the whole four could be put in one brood-frame of full size. Of course, it will be understood that the object of these small frames, or of the triangular pieces of comb, is to make connection between the two sides of the brood-chamber, so that the queen will occupy both.

The plan I have generally practiced has been to put the combs at one side of the hive at the time of contraction, and, after the bees were well started in one side of the super, to reverse it (not *invert*), so as to force them to work in the other side.

IS CONTRACTION DESIRABLE?

I have carried contraction to perhaps as great extremes as most bee-keepers, having had hives by the hundred with only four or five brood-frames, and in quite a number of instances with only two (no queen, however, being in the hive in the latter case), and it may be I shall continue to practice contraction as long as I live; but I must confess that there are to me unsatisfactory features about the whole business. Mind you, I don't condemn the practice. I am only open to conviction, ready to leave it whenever I find a more excellent way. One objection that probably weighs more with me than it does with most bee-keepers is the greater tendency to swarm when the bees are confined to such small quarters in the brood-nest. I never want any swarming at all under any consideration, and the hive-vender with a non-swarming hive would find me a ready victim. I have already mentioned the difficulty of having bees occupying only part of the space under the super. Then, at or after the time of taking off supers comes the trouble of getting matters in shape for winter. If seven or eight frames have been used, the bees are likely to be all right for winter when the supers are taken off, and will do well in most cases if not touched at all. If, however, there has been much contraction, the bees must be fed; and although I have tried to reduce the trouble of feeding to a minimum, still it takes time and labor. Of course, if contraction gives enough better results to outweigh all the objections, then there is nothing to say; but, as I said before, I am open to conviction.

Marengo, Ill. C. C. MILLER.

Friend M., I think I would fix this matter by never reducing to less than seven or eight combs. If this gives you too large a brood-chamber, then I would use a shallower frame. There are quite a good many of the friends—Doolittle among them—who think the L. frame too shallow; but our friend Langstroth made it shallow for the very reason you have given so clearly; and for this very reason I feel very sure we never want a frame deeper than the L. frame. Heddon and some others think, for these very reasons you have given, that we want a frame shallower still; and I believe that our friend Dr. Tinker *is* experimenting with a frame a little shallower than the L. frame.

FURTHER SUGGESTIONS ON MORRISON'S SWARMING-DEVICE.

HOW IT CAN BE MADE TO REACH A SWARM 50 FEET FROM THE GROUND.

MR. ROOT:—You have given, on page 468, a very nice illustration of the swarming-device I have used for some two or three years past. I wish to note two errors in it—one the small staple securing the rope to the pole. It is not needed, and you will see it can not be there. The peach-basket is represented as being fastened to the pole by two attachments. It should be simply tied to the screw-ring at the top. I will claim more for the device than I did. I can get down a swarm clustered at a height of 50 feet, almost as easily as if it were ten feet.

In addition to the swarming-pole illustrated, I have a good basswood strip 15 feet long by 2 inches wide and one thick, which I can secure by two large screws to the top of the swarming-pole, and with this extension I don't ask any better amusement than to bring down a swarm clustered on the top of our tallest maples. The basket in the cut is right side up. If the swarm is clustered on a large limb from which the bees can not be shaken, a slight swing of the basket close to the limb will generally (it has *never* failed with me) secure the bees and queen. I need no help in securing swarms with this device.

Manum's device leaves nothing better to be desired, where the queen's wings are clipped; but many apiarists yet object to clipping; and for the use of the latter class you would confer a great favor by keeping in stock my device, which you are entirely free to make and sell at the lowest figure possible. S. W. MORRISON, M. D.

Oxford, Pa., June 28, 1888.

THE LATE MAJOR FRANCESCO DE HRUSCHKA.

HIS INVENTION OF THE HONEY-EXTRACTOR; HIS PLACE IN THE APICULTURAL WORLD AS A BENEFACTOR, BY CHAS. DADANT.

THE Major Francesco de Hruschka died in Venice, May 11, 1888, aged about 75 years, leaving a beloved wife and several sons. Nothing is publicly known, so far, of his birth and younger years, the major having been very reluctant to speak of himself.

From information published by an Italian bee-journal, *L'Apicoltore* (August, 1878), it appears that he served in the army, and, later, in the navy, of the Austrian Empire, the Italian province of Venetia, in which he lived, being then under the dominion of the Emperor of Austria.

He had attained the rank of major when he relinquished the service to enjoy the happiness of living with his family in his home at Dolo, near Venice, where he kept a large number of colonies of bees, raising Italian queens for Germany, and manufacturing hives and other bee-keepers' appliances.

MAJOR FRANCESCO DE HRUSCHKA.

His increasing business compelled him to remove to Venice, where he resided for part of the time. The city of Venice is built on 70 or 80 very small islands, which connect with one another by more than 300 bridges. Instead of streets, Venice has mostly canals, traversed by gondolas, which are used as conveyances from house to house, instead of street-cars or carriages. The city is separated from the *terra firma* by a lagoon of shallow water, from two to four miles wide, on which the gondolas may be seen day and night. Such position makes of Venice the most wonderful city for the tourist to visit, but, for the same reason, the worst city in which to keep bees, that can be imagined. Hruschka owned in the city a palace, in which he dwelled, though boarding at the hotel, to follow his trade, while his bees were at Dolo.

From what he narrated, on his invention, to the Italian bee-keepers, it appears that, in 1865, a small piece of comb in a dish having been put in a basket fixed to a rope, and whirled around like a toy, by his little son, a few drops of honey were slung out of some of the cells. These few drops were, for his observing mind, the germ of the large step in bee culture which resulted from his invention. The application of this idea underwent several changes and experiments.

The first machine made by Hruschka was a square tin box, the bottom of which, covered with wire cloth, was funnel-shaped; a glass was fastened under it to receive the running honey.

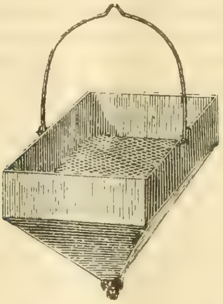


FIG. 1. HRUSCHKA'S FIRST HONEY-EXTRACTOR.

The glass was soon discarded, and replaced by a stopper. The box was suspended by a rope, and turned like a sling (Fig. 1). But as the work of extracting was very slow with such a primitive machine, Hruschka invented a large triangular frame, at the center of which a vertical spindle, turning on a pivot, supported a horizontal beam 12 feet long, at both ends of which the boxes were suspended. Two ropes, one rolling round while the other unrolled, moved the slinging-boxes, which, dropping vertically as soon as the motion stopped, prevented the honey from running out. The length of the beam helped the extracting by increasing the speed of the motion (Fig. 2). But this big machine proving too cumbersome, Hruschka invented another extractor, with a crank and two different-sized wheels, joined by a string. Nearly all the machines now in use are only modifications, or, rather, improvements, of this (Fig. 3).

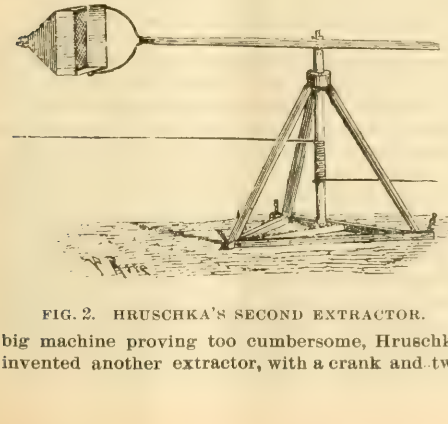


FIG. 2. HRUSCHKA'S SECOND EXTRACTOR.

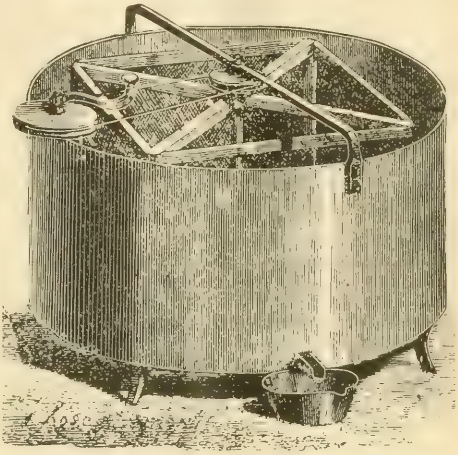


FIG. 3. HRUSCHKA'S PERFECTED EXTRACTOR.

Reduced models of these three first extractors were exhibited at the Exposition of Insects, held in Paris, in 1868, entered under the name of Angelo Lessame, of Dolo, Venetia. It is very probable that the Major de Hruschka, in borrowing this name, was prompted by his modesty. It is useless to add, that the grateful remembrance of Hruschka will last as long as his invention will be used by bee-keepers—I mean, for ever. CHAS. DADANT.

Hamilton, Ill.

Many thanks, friend Dadant, for kindly furnishing us the above particulars in regard to one to whom we are indebted so much, and of whom we have known so little. Perhaps we should explain to our readers, that the portrait was copied by the photo-engraving process, from a picture of Major Hruschka, found in Gravenhorst's "Rational Bee-keeping." The three other engravings are reduced copies of some found in a French journal, entitled *Journal des Fermes*. loaned us by friend Dadant. The journal is dated 1869. And now it transpires, as it has so many times before, that not until his death we discover how much we have been indebted in these years past to the inventor of the honey-extractor. If my memory serves me correctly, the first intimation I ever had that such a machine had ever been made, was from a brief note in a bee-journal published a short time by Mr. VanSlyke, of New York. This came out just before friend Wagner was induced to resume publishing the *American Bee Journal*, and was soon after sold out to the *A. B. J.* Just the bare mention of such a machine was enough to set me at work, and pretty soon I found that our old friend Langstroth had already been using one, and found a ready sale for liquid honey. I believe I made the first all-metal honey-extractor, and at the present time it is not so very much unlike the large engraving above, only I very soon decided upon gearing instead of a cord and pulleys. The all-metal honey-extractors which we began to make and sell at a moderate price have been one of the great factors in building up our business in apiarian supplies. Ernest informs me that we now sell, on an average, 750 machines a year; and liquid honey, through the help of the honey-extractor, is now a staple article of food throughout a great part of the civilized world. In fact, the world at large has almost given up the term "strained honey."

It is a little singular that so great an inventor should have been so very modest a man. Although the matter often came up, nobody could tell any thing about him, and we hardly knew whether he was among the dead or among the living, until the announcement of his death came. And now, friends, the fact that he never cared for honor or publicity should not hinder us from keeping the memory of Hruschka in fond remembrance so long as bee culture shall be an industry and a science. May God be praised that such a man lived, to be a blessing to us all; and when we get into our little strifes and controversies as to who shall have credit of such and such an invention, let us take a lesson from the inventor of the honey-extractor.

HOW TO TELL WHEN BEES ARE GATHERING HONEY, WITHOUT OPENING THE HIVES.

FRIEND DOOLITTLE GIVES US SOME INTERESTING AND VALUABLE FACTS.

"WHEN bees are busy at work (going and coming), and we see no pollen, does it indicate that they are getting honey? If not, how can we tell?" This question has been sent me for an answer through GLEANINGS, and I will try to do the best I can at it. Bees often fly briskly when neither honey nor pollen is being gathered, especially in the spring of the year. Again, in the summer season when large quantities of brood are being reared, I have often thought that the bees were getting honey quite rapidly immediately after a long-continued rain, and wondered at it; but an examination showed that they were loaded only with water, which is required in large quantities when brood-rearing is going on rapidly. Once more: When young bees come out for the first time to take an airing, a casual observer might think they were at work very busily, while the truth would be that they were doing nothing but play. These young bees have deceived very many in times of scarcity of honey, in being taken for robbers, for in actions they behave very much as do robbers in heading toward the hive and circling away from it, and also in being full to look at I have often watched them, asking myself the question, "How can they be told from robbers by the inexperienced?" and must say that only in looks do they appear differently, they being light colored, and covered with down, while robber-bees are generally old dark-colored bees with the down scraped off. The actions of the two are very similar. But I have digressed a little.

Bees that are getting honey of any amount do not fly as easily as a bee with no load, but come down on the alighting-board with a kind of dropping motion that at once shows that the bee has a load of something. Then the sound of the wings is different, for the motion is slower, so gives out a low tired hum, instead of a sharp sound, as is given by an angry bee. In times of basswood, when there is a large yield, the bees will start out in early morning, loading so heavy that they will fall short of the hive several feet, and often fall all around on the grass and top of the hive, being unable to rise for some time. As the day advances they do not show this so much; but as night comes on they begin to fall as before, some even staying out all night, darkness overtaking them before they get in. In such times as this it is easy for any one to tell that the bees are getting honey. In times of clover and other flowers, when the yield is not so great, if you will lie with the eye on a level with the alighting-board, it is quite easy to detect a loaded bee, even though the load may be light, from one with no load. Such loaded bees hold the abdomen lower down than bees with no load, so that the abdomen strikes the board as soon as the feet do, while with a heavy load it strikes first, often causing the bee to bound up, as it were, and sometimes tumble over. Many an hour have I watched the bees in this way, to see what could be told from outside appearances. But so far I have given nothing definite, only as the increase of honey in the hive kept pace with these signs from without, which point that the above was right. How did I tell for certain that these outside appearances were correct? Well, if you will catch a bee and dissect it you can know for a certainty what it has in its honey-stomach, and this is the way I tell, if I am not sure I am right from outside appearances. As the bee drops on the alighting-board, with a quick motion put the finger on its thorax, bearing down till the thorax gives way, which will kill the bee at once, and do it quicker than any other way I have ever seen tried, even quicker than the painless death that Prof. Cook and the scientists practice in killing their specimens for scientific research. Having killed the bee, pick it up by the wings, when you will take it by the thorax with the left hand, and with the point of the blade of your jack-knife pull off the horny scales of the abdomen by slipping it under them and placing the thumb above. When the honey-sack is gotten out it is easy to tell what it contains, by the taste. Don't understand that I go around killing and dissecting bees all the time during the summer months in this way, for only five or six are killed in a season to guide me in my observations, for I think it is very cruel to kill any thing, only as something of importance is to be gained. From the above I think it will be easy for any one to tell when the bees are at work, and when at play.

DRUMMING OUT COMPARED WITH NATURAL SWARMING.

The following question has also been sent me for a reply in GLEANINGS: "Where one can not give needed time, how would it do to drum out the old colony about swarming time, and hive them on full sheets of foundation, putting on the section boxes at the same time, and leaving them on the old stand?" This plan would work very well; in fact, quite as well as the most of the plans given for artificial increase, but I much prefer natural swarms for work. The point to be decided is, "Which will pay me the best—to care for the bees, and neglect other work, or to care for the other work and neglect the bees?" If the latter is decided on, then the plan above given is probably as good as any. If you could have nearly mature queen-cells to give to the old colony the next day after drumming the bees out, a gain would be made sufficient to more than pay for all trouble. G. M. DOOLITTLE.

Borodino, N. Y., July 4, 1888.

Thanks, friend D. I have observed nearly all you mention. The matter of confusing bees taking their playspell with robbers is one of the most perplexing things for a beginner; and, in fact, it has more than once deceived even the veterans. As robbers are, however, generally mature bees, and oftentimes rusty veterans, the appearance is, as you say, a pretty sure indication. Robber-bees coming out of a hive also generally crawl up in front of the hive, in order to get a higher point to take wing, while playing bees seldom do this—at least, not in the same way that a heavily laden bee takes wing. Bees laden with water often behave very much like bees laden with honey. A practiced eye will, however, usually determine pretty quickly by the extra weight of a load of honey compared with a load of water. Bees working on clover do not get to work until the dew is off, or at least partly off. When basswood opens, however, they commence dropping around the hives just as soon as it is daylight; and from this alone I usually determine when basswood has opened.—In regard to your concluding question, I should say that the principal objection to drumming out, or, in fact. any kind of artificial swarming, is, in my opinion, the fact that, if we are working for honey,we are usually better off without any swarming. In other words, do your best to get along without *any* increase. If they persist, however, in swarming, just do your best to get as much honey as you can from your old stock, and from the swarm also. Artificial swarming of any kind upsets such a proceeding, and a great many times the bees know better than their owner when it is best to have a division. If one is working for increase, or proposes to sell bees and queens, this alters the case quite materially.

T. B. TERRY'S STRAWBERRY PROJECT.

AN ENCOURAGING REPORT IN MORE WAYS THAN ONE.

FRIEND ROOT:—You may remember that I wrote you about our young folks setting out about a quarter of an acre with strawberry-plants a little over a year ago. How time flies! It seems but a few days ago, and now the berries are all picked and the profits figured up. You must remember we were all entirely green at the business, and so do not expect any wonderful report. Also remember my object in going into the business; namely, to give the children (pretty large, though, to call children now) something to do, and a chance to make a little money themselves.

Well, I have just looked over their book (all kept in nice order), and find they sold, for cash, berries to the amount of $83.57. But that does not tell the whole story by any means; we had berries on the table at every meal, as free as water, for 22 days. The average quantity eaten in this way was not less than 12 qts. a day, or 8¼ bushels in all. Then we have nearly 5 bushels put up in cans. This 13 bushels, at the price we sold the others for at wholesale, and which was less than we could have bought as fine berries for, would have come to $50. In the total, then, that little patch of ground brought in $133.57. We had our 13 bushels of berries (and more were eaten in the patch and given away) for the use of the land and work we did, wife and I, and it was tremendous pay, while the young folks have $83.57 cash to divide among themselves. This was certainly a profit of—well, far above 100 per cent.

The berries are all sold at wholesale, except a few to neighbors, on their merits, in our little town of Hudson. The father took the berries up for the children, and engineered the selling a little. Not a move was made until the berries were ready, then some were taken in half-bushel drawers to our old merchant, R. P. Williams, with whom we have dealt for 20 years They were *every one* fine and large, and just perfectly ripe and ready to eat. He asked what I wanted for them. I told him such berries should bring 15 cents at retail.

"Why," he says, "we are selling at 12½ now."

"Never mind," I replied, "I think they will bring 15 cents."

"If they do," he said, "I will give you 12½."

Mr. Blackman, his head clerk, who stood by (he is one of your bee-men), said: "Those berries will bring 15 cts. without any trouble."

Well, they did. A clerk afterward told me that the first drawer sold in 20 minutes after it was brought out. There was no more trouble. They brought $4.00 a bushel just as fast as we could carry them up. But no little or poor berries were put in. All were large and fine, and taken up twice a day, usually, so the consumer could get them in perfect order. I think I never got so much praise in my life, in the same time, as while those berries were being eaten by the good people of Hudson. Mr. Williams, who has no soft soap about him, said to me when we got through: "I never managed my berry business so satisfactorily before. There has been no loss, and everybody was satisfied, and I have got you a good price."

Now, do not think I am writing this to praise up our ability—far from it. We have had glory enough already; but GLEANINGS goes to hundreds of towns where just this same thing could be done; and I hope the story of our little success may stir up hundreds of others to do better, some to whom this much money would be almost a fortune. Then, again, I like to show what I have always preached so strongly, namely, that there is plenty of room at the top in any line.

These berries were not raised on any fancy plan. We prepared a field for potatoes, then set strawberry-plants on one-fourth of an acre of the best of the ground. They were choice varieties, largely the Downing. The rows were made 4 feet apart, and plants put 2 feet apart in the rows. We took a little pains to start the runners out in all directions, about the first of August, keeping them cut off until then, and after that they grew as they pleased. But they were most thoroughly cultivated and hoed, frequently, through the season. They were mulched with straw about the middle of November, and half of it was raked off and trodden down between the rows after growth began in the spring. Three nights in June the leaves froze stiff, and an old grower examined them and said one-half the berries were killed. Then the rust injured them some; but in spite of all, and of our inexperience, there was a glorious success, not the least of which was our fill of the choicest ripe fruit for 66 meals.

And now, Mr. Root, I want to ask you if it was extravagant for us to eat so many. When I passed up my saucer (a big coffee-saucer, not a little sauce-dish) for a third filling, I imagined that my wife thought I was a little extravagant. But I always feel better and better every day while strawberries last. Other folks can take their "one dollar a bottle; six bottles for five dollars; worth five dollars a bottle" of spring medicine; but give me plenty of ripe strawberries.

Now, friend Root, did you ever know any one to make something in a new line and not have plenty to rush right into the same business? We made some money on potatoes, and now there are 50 acres within, say, one-half a mile of my house. We made something on berries, and half a dozen friends have told us they are going into the business next spring. Good! I hope I may stir up so many (and that will be the one thing I shall push for years to come—raising small fruits for family use), that every family in the land, of average size, can have 12 bushels a year, at least, to eat and can. But, a word of caution: They must be *choice* to command top prices. Our dealers bought common market berries at $1.50 to $1.75 a bushel when they were paying me $4.00, and they could not sell the others when the choice ones were in sight. Again, I would not advise any farmer to grow berries for market unless he has children who can take almost the entire charge, as they come just when clover needs cutting and crops should be cultivated. It would be easy to lose more than they could make out of the berries. But let every family grow from 8 to 15 square rods for their own use, and live like kings for three weeks—not on the "fat of the land," there is too much of that, but on the fruit of the land.

Hudson, O., July 9, 1888. T. B. TERRY.

Friend T., you have given us just exactly the article we wanted. I have thought of that strawberry-patch, and have been wishing I could get away long enough to go and see it. I rather suspected that any strawberry-patch that was under your supervision would do well; but I hardly expected as good a report as the above. Our berries here were very much injured by frost, especially those first ripened. You ask me if it was extravagant to eat three saucerfuls of strawberries at a meal. I do not think it was at all. My wife has frequently cautioned me about eating so many, but I have always told her that strawberries never had any effect on me but a good one, even though I have several times thought I would see just what the result of an overdose, as the doctors would say, would be; and an overdose certainly never did any harm in my case. *By all means* let the strawberries take the place of spring medicines at a dollar a bottle. Why, the very idea seems to me like emancipation from the thralldom of ignorance and superstition, and I do not know but that I shall be tempted to add, quackery. I myself, I am ashamed to say, have paid "five dollars for six bottles," several times in my life. This was taking a remedy made by man; but eating strawberries is taking a remedy provided by God the Father. E. P. Roe once said, if a man would eat a good dishful of currants every morning before breakfast, it would go a great way toward making a Christian of him, and I verily believe it. To get the full benefit of the strawberry cure we need a great lot of them; and the only way to get this great lot is to raise them ourselves, just as you have done. You have not said very much about the enjoyment of caring for them—seeing the little plants grow, making the ground mellow to accommodate them, etc.; but I tell you, one who has never tasted the pleasures of such outdoor rural work has missed one of God's greatest gifts to man. Ask the young ladies who have worked out among the vines if my words are not true. There is a caution, however, in regard to this business, which you touch on. If the work is not well and intelligently done, it will not be the pleasant pastime, nor will the berries bring the prices you mention. Even during this past season, strawberry-raising got to be an old story, and ours were not mulched and cared for as they ought to have been. I don't believe a city man can have a patch of strawberries out in the country, away from his home, and make it pay to hire the work done—that is, not as a rule. It needs a family of children—not only in making the plants grow, but to dispose of the surplus stock—at breakfast time. It needs papa and mamma to go right in among the children and the strawberries. In speaking about that head clerk, Mr. Blackman, you give us a glimpse of something else that is bright and cheerful. Bee-men are scattered here and there, almost all over the world; and those who read and love GLEANINGS are also here and there, imbued with the spirit it has tried to teach—to be on the alert for God's choicest gifts, and to make the most of them.

HONOR TO WHOM HONOR IS DUE.

FRIEND LANGSTROTH CORRECTS SOME MISTAKES MADE BY FRIEND ROBINSON IN OUR ISSUE FOR JULY 1.

FRIEND ROOT:—Allow me to point out some mistakes of Mr. Robinson's in your July 1 No. He says, "The records show that Mr. Langstroth did not record his invention until Oct. 5, 1852." This is the date when my *patent issued*, but the records show that the application was filed Jan. 6, 1852.

Mr. R. says, "I forward you an illustration of the hive which was awarded the first letters-patent in America." This refers to one of the patents of John M. Weeks, whom you also call "the inventor of the first hive patented in the United States." Now, the records of the Patent Office show that the first hive patented in the U. S. was by J. Sweet, Apr. 11, 1810; and that there were thirteen patents on bee-hives before that of the first Weeks patent, June 30, 1836. This may seem a small mistake, but those who write history ought surely to be more accurate. Mr. R. says, "It is a matter of record that Baron von Berlepsch and Rev. John Dzierzon invented a comb-frame hive, a description of which appeared in the Bienen Zeitung of May 1, 1852." Now, Dzierzon never invented a frame of *any* kind! and the hive of the Baron was sent without any *description* or *illustration*, and its peculiar construction could be only guessed at. Note here, friend Root, that the drawings, specifications, and claims of my patent (with model) were on record in our Patent Office nearly four months before the Baron's hive was spoken of by the German editor. At a later date, Berlepsch was so out of conceit of it that he asked the editor to send it to his lumber-garret.

It is very true, as Mr. R. says, that I do not claim to be the first person to invent a movable-frame bee-hive, but the first person to invent one which was of any practical use, or any improvement upon the leaf hive of Huber. The *American Bee Journal* for 1872, pp. 159 to 175, and 193 to 197, and p. 18, July, 1872, will give to any who wish to investigate these old matters all that Berlepsch, King, and myself saw fit to put on record about them.

Dayton, Ohio, July 9, 1888. L. L. LANGSTROTH.

Friend L., I am very sorry indeed if friend Robinson's statements were incorrect, as you give it. The principal thing that attracted my attention in his communication was the printed sheets from the *Cultivator*, and the record it furnished of the state of bee culture at that old date. Perhaps friend R. may be able to explain what appears, as you state it, to be errors; but I trust it will not be thought necessary to occupy very much space with such matters, and that what is said may be characterized by a spirit of charity and courtesy.

ANOTHER BEE-CELLAR.

A WINTER REPOSITORY FOR BEES. A FRUIT CELLAR, SHOP, AND HONEY-STORAGE ROOM COMBINED.

DIFFERENT ideas have been submitted to the readers of GLEANINGS on house-apiaries, and cellars for wintering bees. The description of the one presented by Prof. Cook, on page 531, GLEANINGS, 1887, would no doubt be a very complete affair; but the cost connected with a building of that description would be, in my opinion, too great for the generality of bee-men, especially when we take into consideration the low price of the product of the apiary.

The general inquiry of the present apiarist, like all other industrial pursuits, is for every investment to be in proportion with the income of the pursuits. The description of a winter repository for bees, as described by Mr. Doolittle, and used by him, is certainly a cheap plan, and I believe a successful one. The best evidence that it is, is that it has proved so to him. But being only winter quarters for bees, it does not give a house-apiary; and where the two are wanted, it is economy to build them together.

I will here submit a plan of my own, which will likely meet the general want in that line; it affords a fruit-cellar for winter apples, potatoes, etc., which no one but those who have such a cellar for winter storage knows the almost untold value of, dispensing with the storing of such decaying matter in the cellar of the dwelling—the last place it should be stored, if health is a consideration.

The building is two stories high, 19½ x 25 feet, outside measure. The cellar should be dug in a bank, if possible, and a portion of the side walls that are exposed should be banked up on the outside, in order to afford an even temperature, and keep out frost. The walls are built 18 in. thick, leaving inside measure of the cellar 16½ x 22 feet. It is divided in two parts lengthwise. The part intended for the bee-cellar is 7 x 22 feet, with three doors opening out. The doors are spaced, each 2 ft. apart. The height of the cellar is 7 ft. in the clear. The floor is cemented with Portland cement, if possible, and, if properly put on, it becomes as hard as flint. It is ceiled overhead with boards. The joists should be at least 8 to 10 in. deep, and filled in the depth of joists with earth or fine charcoal, if it can be had. The idea of this is to assist in keeping a regular temperature. It will also deaden the floor between the upper story, and so prevent disturbance to the bees by any noise or jarring above. There can also be a sub-earth drain, using a three to four inch earthen pipe. A wooden box-pipe will answer nearly as well, and a box-pipe ventilator extending up along the outer side. The partition between the bee and fruit cellars should be studded with eight-inch studding, and filled in with mortared brick, and then plastered, or well lathed and plastered, and then filled in with dry earth or fine charcoal, the walls being also well plastered.

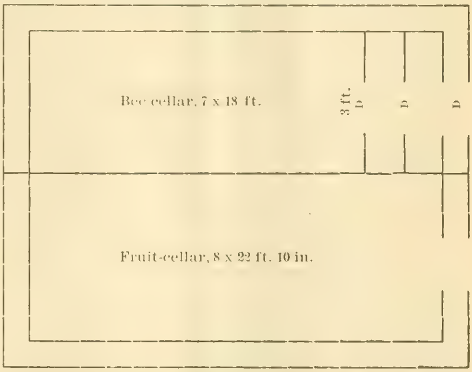


DIAGRAM OF FIRST FLOOR — 19½ x 25 FT., OUTSIDE.

If the floor of the bee-cellar is cemented, first make a layer of coarse gravel, 6 inches thick, then spread on the cement, properly mixed with sand. The floor of the fruit-cellar need not be cemented unless preferred.

I think we have a repository here that will keep bees in a dormant state the winter through, without the expense of a cistern to reduce the temperature. Friend Doolittle's experience with his mode of wintering bees in a cellar, according to my views, corroborates my plan.

The other cellar, calculated for fruit, etc., is almost 9 ft. wide by 25 ft. in length, plastered on all sides, and arranged with 2 sets of shelves all around, 3 feet wide, with slat bottoms made from lath one inch square, and placed ¾ in. apart. These are boarded up to the height desired. This will afford a middle passage, almost 3 feet wide, with a door opening out. In this door it is necessary to have an opening about 18 in. square, over which should be tacked a wire screen. This is to let in air, which is very necessary at times, for the successful keeping of fruit, etc. Over this opening is a small door, to close up when necessary.

There is a ditch dug about 15 in. deep, the width of the wall, sloping toward the front, and a drain from this out, if necessary. This ditch is filled full of finely broken stone. On this the wall is built. The upper story is eight feet high, 19½ x 25 ft., divided in two rooms crosswise, making one room 13 x 19½. This can be used for a shop and extracting-room, The other room, 12 x 19½, is used for storing honey, etc. The entire cost of this building will not exceed $200. J. S. BIDDLE.

Loysburg, Pa.

Honey Statistics

FROM ALL PARTS OF THE UNITED STATES.

In order to read understandingly the reports given below, it will be necessary to observe the following points. First, the State is given; then next in their order are the names of the reporters, with their respective postoffices. To indicate locality, the usual abbrevations are used—N., S., E., and W., for north, south, east, and west; N. E. for north-east, etc. The letter C indicates the word "central;" E. C., east central, etc. In the following list, the first figure represents the month, and the second figure the date at which the report was rendered. The small letters, a, b, c, d, etc., indicate the answers to the questions propounded in questions a, b, c, etc., just below

THE following reports are a little premature for some sections of the country. The amount of new honey taken, therefore, is probably considerably more than that actually reported at the dates given. We anticipated this in sending out the blanks to be filled out and returned; but recognizing the very great importance of giving bee-keepers some knowledge of the scarcity of their product *just at the present time*, we thought best to insert this department in this number. As a perusal of the following reports shows that, up to within a few days, only a small crop of honey had been secured, comparatively, the wise bee-keeper will not be in haste to "lump off" his honey, whatever amount he may have taken; nor will he be satisfied with a moderate price. Let the market call for honey, and let the price run up, as it must necessarily do.

About a month from date we will try to get in another batch of statistics.

The questions to which the correspondents reply are as follows:

a. What is new comb honey selling at in your vicinity?

b. What is new extracted honey selling at?

c. What per cent of an average crop of honey do you estimate has been secured in your vicinity this season? Please answer this question simply by per cent: for instance, 50, 75, 175, or 200 per cent.

d. How many pounds of honey, both comb and extracted, have YOU taken from your own bees, and from how many colonies so far?

e. Was the season with you this year good, average, poor, or bad?

ALABAMA.

W. P. W. Duke, Nettleborough. S. W. 7-8.
a. 12½ to 15. b. 80c to 1.00. c. 200. d. An average of 70 lbs. comb honey per colony. e. Average.

B. G. Luttrell, Luttrell. N. E. 7-11.
a. 15 to 16⅔. b. 12½ to 13. c. About 80. d. On an average of 65 lbs. each, from 20 colonies. e. A little above average.

J. M. Jenkins, Wetumpka. C. 7-1.
a. 15. b. 10. c. 125. d. None. I run on bees and queens this year. e. Good.

ARIZONA.

Jno. L. Gregg, Tempe. C. 6-30.
a. 10 cents. b. 6 cents; demand not good. c. 50. d. 100 hives, spring count, have produced 5000 lbs. e. Hardly average.

ARKANSAS.

A. C. Behrens, Malvern. C. 7-6.
a. 16½. b. 10. c 90. d. 150 pounds comb honey from 10 colonies. d. Average.

W. H. Laws, Lavaca. W. C. 7-4.
a. 15c. b. 12½. c. 20. Our heaviest and white crop is obtained after July 15th from cotton blossom. Prospects are flattering. e. Fair.

CALIFORNIA.

Wm. Muth-Rasmussen, Independence. E. 7-2.
a 12½. b. None new. Old, 2-lb. cans, 23. 5-lb. cans, 50 cts.; 5-gal. cans, $5.00. c. Very little taken yet. Perhaps 15 to 20. d. 1600 lbs. from 36 cols. I do not extract. I have some old extracted on hand. e. Late, but fair.

W. W. Bliss, Duarte. S. E. 7-4.
a. 15c. b. 8c. c. 80. d. 1000 lbs. comb, 300 lbs. extracted; 15 colonies. e. Fair.

R. Wilkin, San Buenaventura. S. W. 7-4.
a. 10 to 8. b. 5 to 4¼. c. 50. d. 3½ tons from 275 hives.

G. W. Cover, Downieville. N. E. C. 7-5.
a. 20. b. None. c. 100. d. None; working for increase. e. Fair.

COLORADO.

Mark W. Moe, Denver. N. C. 7-7.
a. 20. b. 15. c. 100. d. None. e. Fair. Season late.

CONNECTICUT.

Daniel H. Johnson, Danielsonville. E. 7-2.
a. 20 to 25. b. Nearly the same, in jars of 1 lb. c. 0. d. 12 lbs. from one colony only. e. Bad.

DAKOTA.

Thos. D. Lewis, Cando. N. 7-6.
No bees kept here. Mine were all killed by a flood in the spring.

J. Mickelson, Dalesberg. S. E. 7-3.
a, b. 26 to 30 and 35. d. I have not taken one pound from my bees so far.

FLORIDA.

John Y. Detwiler, New Smyrna. E. C. 7-4.
a. 15. b. 10. c. About 30. First extracting not complete. d. 1000 lbs. from 36 colonies, and again full. e. So far, good. My home apiary of 40 colonies is ready for extracting. I have taken none; will average same as d, only 24 days later, owing to location.

J. L. Clark, Apalachicola. W. 7-3.
a. 10. b. 7½. c. 100. d. 3000 lbs. About 40 colonies. e. Average fair.

GEORGIA.

T. E. Hanbury, Atlanta. N. 6-28.
a. None on market; ordinary honey, 10c. b. Very little on sale—not quoted. c. Full average. d. 50 lbs. each from 14 colonies. e. Average.

J. P. H. Brown, Augusta. E. C. 6-29.
a. 15 to 20. b. 10 to 15. c. 100. d. 1000 comb, from 12 colonies. I have 100 colonies, but all except the above were used for breeding queens, filling nuclei, and supplying shipments. e. A full average. One colony filled 125 1-lb. sections.

Walter McWilliams, Griffin. W. C. 7-7.
a. 22 to 25; fancy higher. b. 20. c. 75 per cent, fall crop heaviest. d. 403 from 10 colonies (run for queens). e. Good so far.

R. H. Campbell, Madison. C. 7-1.
a. 10c. b. 8. c. 75 per cent. Comb honey, 50 lbs. per colony. Extracted, from 30 colonies, 75 lbs. per colony. e. Good average.

IDAHO.

Whitney Bros., Payette. S. W. 7-3.
a. 20. b. 18. c. 75. d. 150 from 6 colonies. e. Poor.

ILLINOIS.

Frank Howard, Fairfield. S. 7-10.
a. 15. b. None. c. 10. d. 40 lbs. from 20 colonies.

Mrs. L. Harrison, Peoria. C. 7-9.
a, b. None. c. 0. d. About 100 lbs. of extracted from 90 colonies. e. Bad.

Dr. Wm. Leers, Sigel. 7-7.
a, b. None. c, d. 0. e. Very poor. White clover all destroyed by frost; did not bloom at all. Blackberry, too cold; linden, lost by heavy rain.

J. P. Adams, Paris. E. 7-7.
a. None on the market. b. None. c. Not to exceed 10 per cent. d. I had 15 stands in spring, all in fine condition, but have not taken a pound from them yet—none to take. e. Very poor.

C. C. Miller, Marengo. N. 7-4.
a. None. b. None. C. 0. D. 0. e. VERY bad.

INDIANA.

T. H. Kloer, Terre Haute. W. C. 7-9.
a, b. None. c. 0. d. 0. e. Between June 10 and 20, half of my old bees and all brood starved—living from hand to mouth on linden. Not an ounce of honey in any hive now.

I. R. Good, Nappanee. N. 7-4.
a. None. b. None. c. 0. d. 0. e. Bad.

J. A. Burton, Mitchell. S. C. 7-4.
a. 15 to 20. b. 8. c. 50. d. 450 from 8. e. Poor.

IOWA.

Oliver Foster, Mt. Vernon. E. 7-6.
a. 20c. b. None offered. c. 25. d. 25 lbs. from 2 colonies. e. Poor, so far; basswood just opening.

A. Christie, Smithland. W. 7-4.
a. None offering. b. None. c. None. d. None, from about 500 colonies. e. Bad. I quit feeding my bees only about 4 days ago, to keep them alive. Cold and wet weather during most of the spring made the season so far worse than common.

Eugene Secor, Forest City. N. 7-3.
a. None on sale. b. Ditto. c. 5 per cent. d. None, 35. e. Late—prospect fair.

J. M. Shuck, Des Moines. C. 7-2.
a. None offered. b. None. c. 10. d. None. e. Poor. Basswood not yet in bloom.

J. W. Bittenbender, Knoxville. S. E. 7-2.
a. 18c. b. 12½c. c. 20 per cent. d. None. e. Just beginning, two weeks late.

KANSAS.

J. B. Kline, Topeka. E. C. 7-8.
a, b. None. c. 0. d. 0. 10 colonies. e. Best, for all things considered.

B. F. Uhl, Boling. E. 7-4.
a. From 15 to 20c. b. I don't know. c. 75 per cent. d. I don't extract. e. Average.

KENTUCKY.

J. G. Nance, Belleview. 7-10

a, b. None. c. 25. d. 30 lbs. from 3 colonies. e. Bad. Scarcely any white clover at all; very few swarms. Brood plentiful.

J. P. Moore, Morgan. N. 6-30.

a. 15. b. 10. c. About 35. d. My apiary is devoted to queen-rearing. e. Poor.

John S. Reese, Winchester. C. 7-2.

a. 15c. b. None. c. 40. d. 200 lbs. from 15 colonies. e. Poor to bad.

D. F. Savage, Hopkinsville. S. W. 7-6.

a. 20c. b. 10. c. 50 per cent so far. d. 500 lbs. extracted from 50 colonies. e. Poor so far. It is too soon to give satisfactory answers to questions, from this place.

LOUISIANA.

J. W. K. Shaw, Loreauville. S. C. 7-1.

a. 4 to 6c. b. 50 to 75c a gallon—little sold. c. 100 per cent at this date. We raise only Italian queens. All honey goes to feed and give brood to 300 nuclei, and to winter them. d. 110 lbs. extracted, per colony. e. Good. The season was the best for years. The best prospects for fall. Rain in abundance.

St. J. T. Moore, Monroe. N. C. 7-5.

a. 15. b. 7½. c. 50. I am running for increase. d. From 10 hives set aside for extracted, 15 gallons. e. Average.

MAINE.

J. Reynolds, Clinton. S. E. 7-1.

a and b. None yet. e. Cold, wet; season late.

C. W. Costellow, Waterboro. S. W. 7-5.

a. 30c. b. 20c. c. 100. e. Good, so far, although the season is not over yet.

MARYLAND.

S. Valentine, Hagerstown. N. W. 7-7.

a. 12 to 20. b. None in market at present; would sell at 12 to 15. c. About 20. d. Have tiered up and not taken any yet worth naming. e. Very unfavorable up to June. June, average.

S. P. Roddy, Mechanicstown. N. C. 7-4.

a. 20c. b. 14c. c. 150. d. 600 lbs. from 30 colonies. e. Exceedingly good.

MASSACHUSETTS.

E. W. Lund, Baldwinsville. N. C. 7-6.

a. 18. b. None in market. c. 60. d. 200 lbs. comb honey; 9 colonies. e. Good.

Wm. W. Cary, Colerain. N. W. 6-28.

a. No price established. b. 15c, retail. c. 50. d. 500 lbs. 25 colonies. e. Good so far.

J. E. Pond, No. Attleboro. S. E. 6-28.

a. 25 to 30. b. 20 to 25. c. 75 to 80. d. I run an experimental apiary wholly, and do not expect from six colonies to get 100 lbs of either. e. A fair average.

MICHIGAN.

S. C. Perry, Portland W. C. 7-9.

a. b. None. c. 0. d. 0 from 70. e. Bad.

Matthias Schneider, Jr., McIvor. N. E. 7-5.

a. None. b. 6 to 7. c. About 75. d. About 1000 from 53 colonies. e. Poor.

Harm. Smith, Ionia. W. C. 7 9.

a, b. None. c. None to speak of above brood-nest. I have not heard of a single pound yet taken. d. 0. e. Bad.

George E. Hilton, Fremont. W. 7-2.

a, b. We have none. c. None at present. d. None from 225. e. Since the opening of clover it has been dry and hot; no honey.

T. F. Bingham, Abronia. S. W. 7-3.

a. None to sell. b. None in market. c. 10. d. None complete yet. e So far, poor.

A. J. Cook, Lansing. C. 7-2

a. b. None in the market yet. c. Season not yet opened. d. Nothing. e. Season just opening; at least 3 weeks behind.

H. D. Cutting, Clinton. S. W. 7-4.

a. 20. b. 16. c. 10. d. 108 comb. I have put 35 colonies on comb honey, and but very few cases ready to come off. We don't extract until it is fit to extract later in the season.

James Heddon, Dowagiac. S. W. 7-2.

a, b. Not a drop in the market. c. 5 per cent. d. Hardly any at all. e. Very bad.

R. L. Taylor, Lapeer. E. 7-3.

a, b. None to sell. c. ½ of 1 per cent. d None from 400 colonies. e. Very poor.

MINNESOTA.

A. F. Bright, Mazeppa. E. 7-8.

a, b, c. 0. d. None from 140 colonies. e. Average. Your questions are fully 3 weeks in advance of season here and so can not be answered.

D. P. Lister, Lac Qui Parle. W. C. 7-2.

a, b. Nothing. d. Nothing; 22 colonies. e. Good. No honey yet. Basswood will commence about the tenth.

W. W. Hamilton, Jackson. S. W. 7-1.

a, b, c. None taken off yet. d. None. e. Poor, bees scarcely making a living yet. Some bee-keepers have lost heavily by spring dwindling.

W. Urie, Minneapolis. E. C. 6-30.

a. No new honey in the market, but plenty of old. There is no new extracted in the market; if there were any it would be worth 7 cents. c. There is no per cent secured yet. d. From my own bees I have taken no box nor extracted. e. Season is very bad thus far; nights and days are very cold. We have had two swarms only from nearly 100 colonies.

N. P. Aspinwall, Harrison. C. 7-4.

a, b. None on the market. c. No per cent as to surplus. d. No pounds. e. Bad. We get our surplus from basswood and fall flowers. Basswood will not be in blossom before the 15th inst.

MISSOURI.

E. M. Hayhurst, Kansas City. W. C. 7-8.

a. 25 at retail. b. 15 at retail. c. 33.

Chas. L. Gough, Rock Spring. E. C. 7-2

a. None selling here. We have not got it; worth about 15. b. 10. c. 75. d. 3 colonies 50 lbs. e. Good last month. Bees are getting strong now. I had 4 swarms from 3 colonies.

Jno. Nebel & Son, High Hill. E. C. 7-6.

a, b. None on the market. c. 40. d. None. I have worked 200 colonies for raising queens, bees, etc. e. Average.

James Parshall, Skidmore. N. W. 6-29.

a. None to sell. b. None taken yet. c. 0. d. 0; the season has not commenced for honey here yet. Bees are just commencing to swarm.

S. E. Miller, Bluffton. E. C. 7-7.

a, b. We are governed by the St. Louis and Kansas City prices. c. Not over 25 per cent. d. 350 lbs. extracted; 50 lbs. comb from 27 colonies, spring count. e. Not average, so far—too much rain during basswood bloom.

MISSISSIPPI.

W. A. & E. E. Montgomery, Pickens. C. 7-3.

a. 10c. b. 8c. c. 100. d. 400 lbs. comb from 11 colonies; 255 lbs. extracted, from 9 colonies. We have not extracted close. There is probably more in the hives now than we have taken out. e. Good.

NEBRASKA.

Jerome Wiltse, Falls City. S. E. 7-8.

a. 16. b. 10 c. 100. d. 700, 50 colonies. e. 10 days late, but good. We are having a fine flow of basswood honey. We never have any surplus before basswood.

F. Kingsley, Hebron. S. C. 7-1.

a. Imported, 20c. b. Imported, 15. c. Honey-flow begins in August from hartsease. d. 0. Very little clover here yet. e. Prospectively good.

J. W. Porter, Ponca. N. E. 6-27

a, b. None in market. c. 0. d. 0. e. Very bad. I have never known any honey to be taken from bees in North Neb. before basswood bloomed. From the last of June to Sept 20 is our honey harvest. Clover is only just getting a foothold with us. I could get 25 cents per lb. for new comb honey, and 15 for extracted at this time, if I had it to sell.

NEVADA.

E. A. Moore, Reno. W. C. 7-3.

a, b. None in market. c. 0. d. 0; will extract in a few days. e. Average.

NEW HAMPSHIRE.

S. F. Reed, No. Dorchester. C. 7-2.

a. 20. b. 14. c. 50. d. 0. e. Very bad so far.

C. E. Watts, Rumney. C. 7-5.

a, b. None sold yet. c. Very little taken yet. d. 0. e. Can not tell yet.

J. A. Bachelder, Keene. S. 7-3.

a. 20. b. None in market. c. 25. d. 0. e. Poor.

NEW JERSEY.

J. D. Coles, Woodstown. S.W. 7-4

a. 18. b. None. c. 140. d. 14 from 1. e. Good.

NEW YORK.

A. W. Smith, Parksville. S. E. 7-9.

a 15. b. 10 c 75. d. Very little taken off yet. e. Too wet and cold for the bees to get in good condition for white clover. Not much basswood in this vicinity.

P. H. Elwood, Starkville. C. 7-7.

a. b. None. c. 0. d. 0. e. Prospect poor. Clover does not yield much honey as yet, and basswood will be a very light bloom.

H. P. Langdon, East Constable. N. E. 7-6.

a None. b. 10. c, d. But little; clover light, and basswood not open yet. e. Poor so far.

G. M. Doolittle, Borodino. C. 7-4.

a, b. None. c. 0. d. 0 from 25. e. Average. No honey, except for breeding, in this locality so far. Basswood will open in about a week.

NORTH CAROLINA.

Abbott L. Swinson, Goldsboro. E. 7-3.

a. 10 to 12½. b. None. c. 100. d. 125 lbs. from 3 colonies, queen-rearing requiring all my bees and time. e. Average.

OHIO.

F. G. Fenton, Bluffton. W. C. 7-7.

a. 16 to 20. b. 10 to 12½. c. 100. d. 800 from 20 colonies. e. Good.

S. A. Dyke, Pomeroy. S, E. 7-7.

a. 15. b. None. c. 50. d. None taken off yet. e. Better than for past 3 years, but not an average season for this locality.

Dr. G. L. Tinker, New Philadelphia. N. E. 7-9.

a. 20. b. 15. c. 75. d. 19 lbs., a few sections only, from 3 colonies. e. Fair.

Chas. F. Muth, Cincinnati. S. W. 7-4.

a, b. None come in yet. c. 5. d. 150 lbs. from 20 colonies. e. Very bad.

Dr. H. Besse, Delaware. C. 7-9.

a. 20. b. 15. c 50. d. 0; some ready. e Very good, some working in second and third set of sections, and also in 2d and 3d stories for extracting.

A. B. Mason, Auburndale. N. W. 7-5.

a. None; old, retail, 20. b. None; old, retail, 15. c. 25. d. 0. e. Poor.

OREGON.

J. D. Rusk, Milwaukee. N. W. 7-5.

a. 16. b. 10. c. 50. d. 40 colonies. e. Bad.

George Ebell, Baker City. E. 6-30.

a, b. None. We have had no new honey yet. One swarm only, heard of.

PENNSYLVANIA.

Geo. A. Wright, Glenwood. N. E. 7-2.

a, b. None sold yet. c. I can't tell. Mostly on the hives yet. d. Very little. e. Fair. Your questions are too early for this locality.

S. W. Morrison, Oxford. S. E. 7-6.
a. 25 b. 15, c. 100 d. 1000 from 10 colonies. e. Very good; white clover season ended shorter period than usual. Bees are now on chestnut-blossoms, and spoiling the stores.

Watts Bros., Murray. C. 7-5.
a, b None. c 50 d. 0; 35 colonies. e. Poor.

M. H. Tweed, Allegheny City. W. 7-10.
a, b. Not a pound offered in Pittsburgh or Allegheny yet.

J. H. Johnson, Middaugh. E. C. 7-1.
a. 20, retail. b. None. c. Perhaps 50. d. 3100 lbs. comb honey, from 76 colonies. e. Good season.

Geo. W. Miles, Teepleville. N. W. 7-10.
a. 14. b. None. c. 50. d. 100 lbs., 2 colonies. e. Can not answer this question; too early in the season.

SOUTH CAROLINA.

H. T. Cook, Paris Mountain. 7-6.
a. 10 to 15c. b. None c. Can't tell. From April 29 to May 10 there was an abundant flow. Very little since. d. From 0 to 18½ lbs. per colony, 23 in number. e. Good and bad.

W. J. Ellison, Stateburg. C. 7-2.
a 10 to 12½. b 8 and 10 c. 150. d. I don't know e. Good

J. D. Fooshe, Coronaca. 7-3.
a 10 b 8 to 9 c. 50, extracted; comb honey, failure. d. 15 colonies, 300 lbs. extracted; 10 for comb, nothing. e Poor. The cold rainy weather in May cut the crop short here, and bees have barely made a living since.

TENNESSEE.

W. H. Greer, Paris. N. W. 7 7.
a 12½c. b 10. c 80. Not 100, because preceded by a very bad season. d. 150 from 10. Small, because I worked for increase and from weak stocks. e. Average.

G. B. Cartmell, Jackson. N. C. 7-10.
a. 10 and 12½ b. None. c. 100. d. 300 lbs. from 6 colonies. e. Good.

TEXAS.

L. Stachelhausen, Selma. S C. 7 2
a. 8 to 12½. b. 5 to 8; hard to sell. c. 150. d. 11,000 lbs. from 110 colonies, spring count. e. Good.

J. E. Lay, Hallettsville. S. E. 7-1.
a None b. 10. c. 50. d. 720 from 30 colonies. e. Average.

J. P. Caldwell, San Marcos. S. W. 6-29.
a. 10. b. 8. c. 100. d. 2500 lbs. from 70 colonies. e Fair.

UTAH.

G. N. Dow, Salt Lake City. C. 6-30.
a. 12½, wholesale. b. 6 to 7. c. 75. d. 8 colonies, 100 lbs. e. Average.

VERMONT.

J E Crane, Middlebury W C 6-30
a, b. None. c. 25. d. No new honey yet taken from hives. e. Season good, but most of our surplus will be taken in July.

Howard J. Smith, Richford. N. C. 7-3.
c. No honey taken e. Season has been very bad.

VIRGINIA.

J. W. Porter, Charlottesville. C. 7-6.
a. 15. b 10. c. 65. d. 1000 lbs. from 130. e. Poor; quality unsurpassed.

H. W. Bass, Front Royal. N. 7-4.
a 12 b None c. Too previous. d Next time. e Average.

J. C. Frisbee, Suffolk. S E. 7-7.
a. 15. b 10. c. 75. d. Nominally none, having run for increase. e. Good, early. Bad, later.

H. W. White, Broad Run Sta. N. 7-9.
a. 10 to 15, 1-lb. sections. b. None. c. 150. d. 20 per cent of 40 colonies. e. Very good for a short season.

James E. Duvalls, Bellefair Mills. E. 7-6.
a 12½. b. 0. c. 33⅓. d. 71 of comb honey, from 24 colonies. e. Poor.

WEST VIRGINIA.

Will Thatcher, Martinsburg. W. C. 7-7.
a. From 12½ to 15. b. 10. 90 per cent comb produced here to one of extracted. c. To present date, 40. d. Ext. none; I have about 1200 lbs. comb honey, tiered up on 30 colonies. e. The season has been a fair average.

J C Capehart St. Albans S W 7 1.
a. 18 to 20, retail. b. 10 to 12½, retail. c. 100. d. 600 lbs. from 10 run for honey. e. Fair.

M. A. Kelley, Milton. S. W. 6-30.
a. 12½. b. 8⅓. c. 150. d. Comb, 600; extracted, 250; total, 850 from 43 colonies, so far. e. Fair.

J. A. Buchanan, Holliday's Cove. N. 7-7.
a, b. None c 0 d 2000 lbs so called "honey-dew," as black as tar, and about as heavy in body, from one hundred colonies. e. Bad—never saw as poor up to date.

Nimshi Nuzum, Boothsville. N. 7-9.
a. 15. b. 10. c. 100. d. 600 lbs., 8 colonies. e. Good.

WASHINGTON TERRITORY.

W. W. Maltby, Port Angeles. N.W. 7-6.
a, b. None. c. 75. d. Have taken none. e. Good.

John D. Goe, Mossy Rock. S. W. 7-3.
a. 18 to 20. b. 8. c. About 50. e. The season has been very backward, raining most of the time; honey comes in very slowly.

WISCONSIN.

Frank McNay, Mauston. C. 7-4.
a, b None. c. 0. d. 0 from 240 colonies. e. Bad.

George Grimm, Jefferson. S. E. 7-3.
a, b. None. c. 0. d. 0. e. Poor.

E. France, Platteville. S. W. 7-2.
a. I have none. b. 10. c. 0. d. 2800, 431 colonies. e. Poor.

S. I. Freeborn, Ithaca. S. W. 7-1.
a, b. None. c. 0. d. 0. e. Cold and backward.

E. E. Tongue, Hillsborough. S. W. 7-5.
a, b. None. c. The weather is too rainy here. If we don't get basswood we shall not have any; will have to feed bees. d. Very small amount. It has been so small that we have not weighed it. There has been only 20 per cent taken from 100 colonies.

J. C. Sayles, Hartford. S. E. 7-3.
a b None. c. 0. d. 0. e. Bad.

Joshua Bull, Seymour. E. 7-9.
a. 15 and 18. b. 8 and 10. c. 50 per cent from clover. d. I have not removed much surplus yet (bees cap their honey very slowly). e. Very good, or average, with a fair prospect of a good yield from basswood, which is not yet blossomed.

WYOMING TERRITORY.

G. G. Mead, Ferris. S. 7-9.
a, 20. b, 10. c, Above the average. d, Have not gathered my honey yet. e, Good.

We find, upon calculation, that a summarized statement of the foregoing reports stands as follows: (*a*) The average price of comb honey throughout the rural districts of the U. S. is very nearly 16 cts.; the average price of extracted, 11 cts. In looking down over these reports we find that comb honey is selling in a good many places for 20, 30, and 35 cts. We observe, also, that in other districts it is selling as low as 5 cts.; that extracted bears very nearly the same proportionate variations. Both comb and exracted sell for a great deal less in the South than in the North. This is largely attributable to the fact that the honey of the South is inferior to that of the North. It is also interesting to note that, in the rural districts, honey brings a much higher price than in the cities. Producers should not fail to take this into consideration when about to dispose of their crop.

The answers to question (*c*) we have not summarized. As regards question (*d*), we find that the average number of pounds per colony, secured by those who report anywhere from 0 to over 100 lbs., is only 16. The large number of those reporting zero (53) reduce the average very materially. Counting out this number, the average would be 36 instead of 16. In looking down over the statistics we find there are only two who have reported as high as 100 pounds per colony. One is L. Stachelhausen, Selma, Tex., one of our German correspondents. From 110 colonies he secured 11,000 lbs. of honey. (We congratulate you, friend S.) We discover that there are very few who obtained over 50 lbs. Quite a number secured only 8 or 10 lbs. per colony. E. France, one who has obtained in former years such enormous yields from so many colonies, has secured this year less than 7 lbs. per colony from his 431, up to date of July 2. (We condole you, friend F.) To question (*e*), 20 report the season good; 17 average; 12 fair; 21 poor; 20 bad.

Putting the sum of the numbers corresponding to good, average, and fair, over against the numbers corresponding to poor and bad, the ratio stands 49 to 41. In a word, not only has a very small crop of honey been secured, but the season with nearly half of those who reported to (*e*) has been poor. Taking it all in all, it is discouraging; but *we* must not be discouraged.

The average date at which the reports were given is July 4. Please bear this in mind, then, that the foregoing summary applies to and up to about July 4. Since that time the outlook for the bee-keepers may have been changed quite materially. We shall see when our next batch of statistical reports is produced, a month from date.

FOUR-PIECE SECTIONS VS. ONE-PIECE.

FRIEND J. A. GREEN GIVES US SOME EXCELLENT REASONS, PRO AND CON.

FROM the fact that there is such a diversity of opinion in regard to these two styles of sections, it is evident that both kinds have their merits. In this article I will try to compare these fairly.

One great advantage that the four-piece has over the other, is, that it may be made of much nicer, whiter wood. This is certainly something to be considered. We want our honey to look as nice as possible. Whether or not there will be sufficient increase in attractiveness to pay for the extra cost and trouble, each must decide for himself—with the help of the one to whom he sells. If I thought that a crate of nice honey would bring a cent a pound more in poplar sections than in those made of white basswood, I should probably want poplar sections; but I very much doubt that any one would give me the extra cent.

Another advantage is, that this hard wood does not absorb honey that gets daubed on the outside of the sections, and it may be washed off without injuring their appearance as much as is the case with basswood. However, you have no business to get honey on the outside of sections, so this does not amount to much.

It is claimed for the four-piece, that, because the entrance extends clear across the section, and is usually made wider than is common with the one-piece, it is easier to see the combs and thus judge of their condition without removing them, also allowing bees to be shaken out more easily. The one-piece is better made in this respect than it used to be, and I see no reason why the entrance should not be made full bee-space on each side; that is, so that, when two sections are placed together, the opening between shall be scant ¾ of an inch. This is when separators are to be used. Without separators, ½ inch is sufficient. The entrance, too, should be made as long as possible.

A serious objection to the one-piece section is, that in all supers from which they are to be removed by pushing or pounding on the bottom, they are liable to be broken in the operation. When the sections all come out in a body, though, as in the T super, there is not so much danger of this.

Another objection that is a serious one to those who do not use separators is the projecting corner on the bottom piece. In sliding sections past each other, if one is built out a little beyond the sides, the corner of the other will dig into the comb and reduce the nice section of honey to a dauby mess. Of course, bee-keepers will not do this often; but commission men and the general customer do not know any better. Then these same projecting corners are a hindrance in shaking bees out of supers. The first and third of these objections are entirely, and the second partially, obviated in the two-piece section, which has one side as in the four-piece and the remainder in one piece. This dovetailed side should be the bottom of the section and not the top, as seems to be the idea of some manufacturers who persist in sawing that obsolete groove along the center.

I like these two-piece sections. They are stronger against pressure on the bottom than the one-piece, do not have the "naughty corner," except at the top; look better, bees shake out better, and you can tell at a glance which is top and which is bottom. Combining nearly all the advantages of the four-piece they are not so expensive, and do not take so much time to put together.

The time required to put the four-piece together is one of the greatest objections to their use. It does not amount to much when one has only a few to put up; but when it comes to thousands it becomes important. They are frailer than the one-piece (except that they will stand direct pressure better), especially when the section is not built full of comb, and are somewhat more liable to be injured in cleaning. Of course, they are strong enough when glued; but while I have never glued any sections, I should think it would be a dauby and wearisome task. The V-groove section could be glued if desired, making a stronger and neater job than with the four-piece.

The first cost of the four-piece poplar section is considerably greater than that of the one-piece; and by the time they are ready for market, the difference is increased. That extra cent a pound might pay me for using them, but I am sure I do not want to use them unless I can get it.

Dayton, Ill., June 22, 1888. JAMES A. GREEN.

HONEY FROM HARD MAPLES.

MRS. CHADDOCK SUGGESTS THAT IT IS POLLEN INSTEAD OF HONEY THAT THE BEES GET.

HOW much honey do bees get from the hard maple? We have them in our dooryard, and they were in bloom two weeks, and the bees fairly roared about them. I watched them at work, and it seemed to me that they did not stay long enough at one blossom to suck nectar from it, but just rolled and tumbled the stamens about as though they were hunting for something that they never seemed to find; then on the wing a moment, twisting the legs together in a most frantic way, then to another cluster, and the same hurrying-scurrying motions. They worked on the maples only when the days were warm. On coolish days they flew away somewhere and came back—some of them with a differently colored pollen on their legs, most of them with nothing. They came to the well for water, and it seemed to me that, if pollen were all that they got from the maples, they might as well be working away at them.

I see, in examining the stamens of different flowers, that there is a white sticky substance on most of them, wound carelessly round the pollen grains, something as an ear of corn might look after being thrust through a thin spider's web. Now, is this sticky substance propolis? and do the bees get some of it out of flowers if they want it? and if this sticky substance is propolis, it would be easy to see why bees gather pollen better on warm days than on coolish ones. This substance is very tenacious. A thread of it will lift half the pollen on one stamen—a thread that is invisible to the naked eye. I killed a few bees as they attempted to enter the hives. Only one of them had honey in the honey-sac, and I am inclined to think that it was old honey that the bee had carried from the hive. But finding no honey in the bees would not prove that the maple-blossoms contained no honey. They might yield enough to make the pollen stick together, and still the bee have none to carry home in her sac. So with what I have investigated as to whether maple-blossoms yield nectar, I have come to the conclusion that I don't know. Is the nectar ever in the stamens? Seems to me that the tube, or cup, that all flowers have is the place for the nectar.

I like to look at flowers under the magnifier. The most dull and insignificant flowers are then gorgeous and beautiful. The currant, gooseberry, sassafras, and maple are all interesting. But the most delicate and beautiful of all that I have seen is the cherry. The petals look as if one could almost see through them, while the many stamens spread every way. Nature seems to be very free with her stamens, placing them not only where they are needed, but also where they are not needed. I find that the maple-blossom has eight (or seven) stamens protruding from its bell-shaped flower. No more are to be seen anywhere; but in some days—a week perhaps—when the wings are half grown, if we turn down the husk that was once the flower we find six more stamens, with the anthers bigger and more full of pollen than any of the eight that protruded from the flower. Now, these six stamens are useless. No bee, no insect of any kind can get to them to carry the pollen away, and the seed in the seed-pod is much too far along to need pollen.

MAHALA B. CHADDOCK.
Vermont, Ill., May, 1888.

Mrs. C., I am afraid you are getting into deep water; and I am afraid that even our botanists have not sufficiently considered the things you tell us about, to be able to explain it all. I have noticed a good deal that you tell us, and I have often wondered whether anybody else had enjoyed looking at the little insignificant flowerets as I have with the aid of a microscope. The currant and gooseberry flowers are indeed gorgeous, with even a magnifier of small power. I can not give up thinking, however, that our bees get honey from hard maples; but all I know about it is, that the trees are roaring with them, and when we tip up the combs, the thin honey runs out, and it tastes so much like our best evaporated maple syrup I can hardly think there is a mistake. How do you know that this second crop of six stamens is useless? May be they are, as you say, useless to the bees; but don't you suppose, my good friend, that maple-trees know what they are doing, and what they are not? Where is there a botanist to help us?

SUGGESTIONS FOR A NEW VEIL.

BETTER VENTILATION NEEDED.

EDITOR GLEANINGS:—A good deal has been said about bee-veils; but the right thing has not as yet been arrived at. The present veil is entirely too hot. It acts on the principle of the Charter Oak "wire-gauze ovens"—the gauze of the wire or veil does not permit the heat from the face to escape or the cool air to come in, and, as a consequence, our hot breath, and heat from our faces, render the veil unbearable, and result in headache, reddened eyes, and parched skins, which are almost cooked by the extreme heat generated under these veils.

Now, the point to be arrived at is for some inventive genius to invent a veil, with openings or meshes at least half an inch long, and a little less than bee-space, so arranged that a bee can not get through it, but at the same time the hot air can get out and fresh cool air can come in. The present veil is the worst thing connected with bee culture. The heat that is retained is unwholesome, unbearable for any length of time, and prostrating. We want a veil that will let our breath and heat pass off, and the cool, pure air to constantly take its place; and until we have such a veil there will be no comfort in bee-keeping for those who wear a veil, and almost every bee-keeper has occasion to wear one occasionally.

The man who will invent such a veil as I speak of will not only be a benefactor to mankind, but he will reap a large profit from the same. I should think that some wireworks company could do something in this direction. Perhaps a half-inch rim of thin zinc, punched like your honey-boards, and tacked to a hat, and a veil to that, might answer the purpose. The punched holes, if they are a little less than bee-space, might let out the hot air and let in the cool. At any rate, a veil of the kind mentioned is badly needed. Who will supply it?

Atlanta, Ga., June 27, 1888. T. E. HANBURY.

We recognize to a certain extent some of the difficulties you mention; but such a bee-veil as you describe in your letter, even if it could be made, would not be bee-proof. A mesh ½ inch long, and a little less in width than zinc perforations, when wrinkled, folded, or bent up, would let the bees pass through readily. It is true, heavy wire could be used, but that would obstruct the vision so as to be objectionable. We have in former times written the manufacturers of wire cloth, and we found that a large mesh of *fine* wire could not well be made. It seems to us you very greatly overdraw the disadvantages accruing from the use of veils already in use. Those we sell will never cause a person's face to become parched and almost "cooked," as you express it.

ANTS.

PROF. COOK TELLS US HOW TO GET RID OF THEM.

I AM troubled very much with a gray ant which infects my hives and honey-house. As soon as a stand gets a little weak, the ants will eat every egg in the brood-cell and thus stop brooding. They will kill bees, and, I think, sometimes even kill the queen. I have tried every thing that I can hear of for killing them; but so far I have not been successful. I can not find their nests. What will kill them? J. W. TOWNS.

Verdugo, Cal., June 10, 1888.

Prof. Cook replies as follows:

It is always best for inquirers to send specimens of the insects that trouble them, then there can be no mistake. Mimicry is so strong and common among insects that many mistake one insect for a totally different kind.

There are two good ways to destroy ants. One is to find their nest and make a hole in the center of it with a crowbar or other iron rod, then turn in half a gill of bisulphide of carbon, and immediately fill the hole and cover it with a little clay, which should be tramped down. The liquid quickly vaporizes, and kills all the ants. Like gasoline, this liquid is very inflammable, so it must not be exposed, either the liquid or vapor, to the fire.

Another way is to mix a little London purple with thin syrup, and inclose it in a box with wire gauze so that the ants can reach it, but not the bees. I have thus poisoned ants in the upper story of chaff hives in early spring. A. J. COOK.

Agricultural College, Mich., June 23, 1888.

Friend Cook, I want to ask you about the term "mimicry." I presume you mean by this that nature seems to delight in copying, or making insects that very much resemble others. The remedy you give, in arranging London purple with a feeder, covered with wire cloth, so the ants can get at it, and not the bees, is very ingenious. It would not answer, however, to leave such things lying around loose, or we might have our bees poisoned before we know it, through some accidental injury caused to the poison-trap.

HOW TO MAKE "GOOD" CANDY GOOD.

J. D. FOOSHE TELLS US HOW HIS WIFE DOES IT.

AMONG the queens which we have received from the South in mailing-cages, we observe the very noticeable fact that those from J. D. Fooshe always came in the best condition by far, and, with scarcely an exception, the bees and queen were just as lively as when taken directly from the hive. Believing that this difference was entirely due to candy and feeding too, that our candy was inferior to Fooshe's, we wrote him requesting him to tell us briefly how he made his. His letter is as follows :

Friend Root:—My wife has always done that; and when she read your letter we got your price list and compared your way of making with ours; and we find this difference: You say, "Take thick honey and stir in pulverized sugar till it makes good stiff dough, and then let it stand until it is hard enough not to run. Instead of stirring sugar in thick honey we take good thick honey and warm it thoroughly so as to become very thin, and stir pulverized sugar in it until it becomes a stiff dough; and after we have stirred in all the sugar the honey will absorb, we take our hands and work it well; for in working it with the hands the honey will absorb more sugar; and when sufficiently worked we roll out in sticks and lay them separate. It is then ready for immediate use. My wife adopted the plan of heating the honey, because it makes it work easier; and since you have called attention to the difference between my candy and others, I suppose therein lies the secret, if any there be in it. When you stir pulverized sugar in thick honey it is hard to tell when you have got it to a proper consistency for warm weather or for damp weather. If the weather is very warm, and the heat of bees together will cause candy made with thick honey to run (in damp weather it is very much inclined to run) the bees often get daubed with the honey; but if you will think of it, if you heat the honey until it is very thin (without boiling), and let it take in all the sugar you can work in it, neither damp weather nor heat will cause it to run so as to daub the bees. I think your plan all right for making candy to lay over clusters of bees to feed them; but for provisioning cages to ship queens in, we ought to be careful that it be of a proper consistency. The finer the sugar, the better the candy. J. D. FOOSHE.

Coronaca, Abbeville Co , S. C., June 25, 1888.

Friend F., we are very much obliged indeed for a description of your method of making candy. When our honey is candied we always melt it, and I believe our women-folks usually heat it before adding the sugar. Very likely they do not heat it as much as you do. No doubt many of our readers will be glad to profit by the instructions you give.

ITEMS OF EXPERIENCE FROM MRS. AXTELL.

MRS. AXTELL'S BEE-BONNET, ETC.

FRIEND ROOT:—I am very sorry that my bee-bonnet has given so much trouble. I had no thought of any thing but a hint that might be a help to some middle-aged lady who might, like myself, find a hat a burden to wear. I had no thought that our brother and sister bee-keepers were so inconsiderate that a mere mention of a thing was going to cause them to rush for it whether it was best for them to have it or not.

The loose piece in front of the bonnet should not have been sewed down flat over the forehead, but to the front of the hat, so as to project forward, and thus shade the face from the sun.

THE SEASON.

We are having very cool weather for the month of June—rainy, cool, and cloudy. The consequence is, bees are getting but very little honey. Weak colonies get just enough to keep up brood-rearing, and strong colonies are keeping their combs well filled with brood, which is not always the case in a heavy honey-flow, so that, if it does come off warm by and by, we may yet have a honey-flow and some swarming.

DARK HONEY.

The honey they have been getting thus far is very dark. I took off six finished sections a few days since, of the darkest honey I ever saw, of a whole section. I have before seen a few cells of dark honey, but not a whole section. Our honey is always very white, from white clover, in the month of June; but as it has been so rainy for a few days past it is being taken out of sections to the brood-nest. We hope soon to have better weather for honey-gathering, as these protracted rains have caused the white clover, that was so badly killed out, to come on vigorously.

I think bee-keepers who hold on and keep their colonies strong, will, before the close of the season, be rewarded for their toil. We have found bee-keeping to pay well, taking one year with another, and we can not always tell just when the honey-flow will come, so that, if we wish to catch the flow, we must keep our bees strong *all* the time, for it takes a long time to build up a weak colony, and it does not cost a bee-keeper any more to keep strong colonies than it does to keep weak ones. Strong ones will find honey where weak ones will starve.

We often get our largest crop of honey in the fall, from the middle of August to last of September.

FEEDING CUT-LOAF SUGAR NOT A SUCCESS.

Last fall we thought we would lengthen out our honey store to the bees by feeding cut-loaf sugar, where the bees had about half enough stores, as we had seen it recommended for feeding bees. We accordingly bought two barrels of it and laid it in piles on strips of wire cloth above the frames, in such a way that the bees could have full access to it. But this spring we found it was worse than a failure, as bees ate but very little of it, and it had to be gathered off and melted. It made work that amounted to nothing, as it was too hard and dry for them to eat.

We fed in all about seven barrels of sugar, the bees not getting a living until about the 14th of June, at Home Apiary, and the 10th of June at Timber Apiary.

We have found no way that was satisfactory to feed in the hives. The butter-dishes were so frail that they spilled when the quilt was laid over them.

For weak colonies we tried several ways of feeding in hives, and finally we made a long trough and tacked strips together, spaced apart like the Root grooved feeders, and laid in the honey-feeders and fed outdoors. Each apiary would take up a pailful of thin syrup in half an hour. Perhaps we fed our neighbors' bees some, but there was the consolation of no loss or harm being done, and the labor was much less. Feeding 200 colonies of bees in the hives daily, or even once a week, is no light job, especially when we have to melt the sugar on the kitchen stove and take it four miles away to feed bees.

Mr. Axtell and I both conclude that it will be our last feeding of bees if we can help it, except by setting in brood-combs filled with honey kept on hand for that purpose. We can get honey enough to sell, and for the bees, usually, with less expense than feeding sugar, when we bring into account the labor of feeding. No doubt it may pay others to feed, under other circumstances, year after year, but it does not pay us; bees can usually gather it for us cheaper than we can hire help to do the work or do it ourselves. MRS. L. C. AXTELL.

Roseville, Warren Co., Ill.

I should think that the dark honey you mention, Mrs. A., was honey-dew. It is very bad to come in just as white clover stops. I think that the cut, or loaf sugar, would have been a success had you placed something over it, such as a bowl or small crock, so the moisture from the breath of the bees would condense on the sugar and cause it to liquefy. I agree with you, that outdoor feeding is an immense saving of labor, and I like the idea of helping our neighbors' bees, except that it may induce them to hang around and try robbing when the feeders are empty.

A MODIFIED T SUPER.

SOME OF ITS EXCELLENCIES AND DEFECTS.

AT various times we have illustrated and described some forms of shallow section-crates. On page 436 for 1887 appears an article and cut from E. Kretchmer, describing his shallow crate. On page 285, current volume, is illustrated and described Grimm's section-case. Our friend Mr. G. W. Harrison, of Copley, O., working along in the same line, and desiring to get something cheap and which would permit the easy removal of individual sections when filled, and the substitution of empty ones, has made the following modification of the T super. The idea is not new, but it contains some features which we thought best to call attention to. It is simply a frame made out of stuff about ⅞ inch square, said pieces being fastened together at the corners, as shown in the engraving. The two end-pieces have each two saw-kerfs, into which is slid the uprights of a T tin. These are then secured by means of a wire nail driven in at each end of the T.

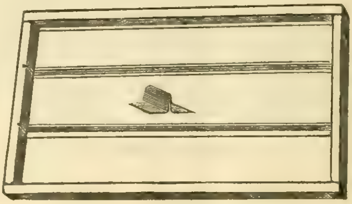


FIG. 1.

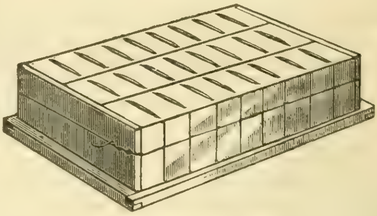


FIG. 2.

Figure 1 shows more exactly the manner of construction. Fig. 2 represents the same when filled with sections.

You will notice that the T tins are fastened permanently lengthwise of the frame. Indeed, in so shallow a case it is not necessary to have them removable. As in the T super, no bee-space is provided below. To close the ends of the sections, a board of suitable size is used at each end. Two of these are held tightly to the sections by means of a cord tied around, as shown in Fig. 2. Friend Harrison's letter relating to it is as follows:

Friend Root:—I consider this the handiest and simplest crate that I ever used or handled. It has given me the best results of any crate I have ever used, and it is no new thing or experiment with me. I have used them for the last three seasons, this being the fourth, and the longer I use them the better I like them. The model I sent you is designed to be used on the Simplicity or one-story chaff hive, and over or on top of your new zinc or any other honey-board (of the same size), giving ¼-inch or ⅜-inch bee-space on the top of the honey-board. It can also be used without the honey-board, and can be tiered up to any desired height. In using this crate I find that the sections are more easily got at, and can be removed more readily than from any other arrangement I have ever used.

My way of using this crate is to leave it on the hive during the whole season or time in which I desire to secure surplus honey. I remove the full sections as soon as they are ready to come off, and fill up the center with empty sections, and move to the outer edge of the crate those sections which are nearest completed, but not yet ready to come off. I use the one-pound open top and bottom sections, to prevent the bees from coming out at the top of the sections. I put on an enamel cloth, or any other cover that can be easily rolled back or removed, when necessary to look in at the top of the sections.

Another reason why I like this crate best is because I can raise the whitest and cleanest honey in it of any crate I ever used, simply for the reason that the honey can and should be removed just as soon as it is fit to do so.

Another reason is, I have fewer unfinished sections left on hand at the end of the season, for I take off only the full, or finished ones, till in the fall, when I take my crates and all off.

Copley, O., June 18, 1888. G. W. HARRISON.

As friend H. says, this case is designed to be used in connection with a honey-board; but he says it can be used without one. We hardly think that many of those who have had the pleasure of using a honey-board would think of using such a crate placed directly upon the brood-combs. The bottoms of the sections, unless otherwise protected, would become soiled, and daubed with bits of burr-combs, and this, but few bee-keepers would tolerate, especially those who manipulate large apiaries.

It is true, it can be tiered up, but, we think, not as rapidly as the T super or some sort of arrangement which provides for a bee-space between two tiers of sections. As there is no bee-space in the frame itself, and no projecting sides or ends to raise the second tier ⅜ in. above the lower one, one frame of sections would rest directly on and in contact with the one below. The consequence would be, that the bees would chink propolis in the interstices formed by the upper and lower tier of sections. The bee-space might, it is true, be provided for by laying quarter-inch strips on top and at each end of the lower tier of sections. In the T super, a bee-space is left on top, and, tier up as high as you may, each layer of sections will be a bee-space from the other.

Friend Harrison mentions the facility with which the finished sections can be removed and empty ones slipped in their place. This is quite an advantage, where one has time enough to examine whether each section is filled out enough to be removed. But in extensive apiaries, where large quantities of honey are being produced, the apiarist could hardly afford the time to take out and replace individual sections. By means of a follower such as friend Miller has described, we have found that the whole contents of the T super can be emptied *en masse* almost, as quickly and easily as one individual section can be picked out. Friend Harrison, however, does not pretend to be an extensive bee-keeper, and has designed this case more for the convenience of the smaller bee-keepers like himself.

As to the expense of this arrangement, we find, upon a little figuring, that it costs very nearly as much as the T super, and that, too, without its attendant advantages. It is true, the pieces composing the frame can be made of culled stuff, odds and ends, that would otherwise be thrown away; but any one who has had experience in the way of handling culled pieces will know that it costs nearly all it is worth to redress them into something else useful. Again, in order to give sufficient rigidity to the frame, the corners should be halved. This in itself likewise increases the expense of construction. It is true, there are no side-pieces, as in the T super; but there are loose end-pieces, so that nearly all the difference in the amount of lumber used is, that the T super makes use of the sides while the frame dispenses with it. But the absence of this amount of lumber is fully compensated in the extra expense incident upon constructing the frame. We had hoped to construct them cheaper than the T super, and thus make them for those who desire something cheaper.

FALSE STATEMENTS IN REGARD TO THE HONEY BUSINESS OF OUR COUNTRY.

As a protection to our bee-keeping population, we propose in this department to publish the names of newspapers that persist in publishing false statements in regard to the purity of honey which we as bee-keepers put on the market.

ANOTHER BATTLE TO FIGHT IN THE CAUSE OF JUSTICE AND TRUTH.

IT really seems as if the prince of darkness himself were massing all his energies to do us harm. Not only have heedless men enlisted themselves against us, but from the following we judge that a microscopical society has in some way got to blundering in the dark:

Mr. Root:—Herewith you will find a slip clipped from the St. Louis *Journal of Agriculture*, on which I should like to hear your opinion through GLEANINGS.

HONEY.

The Microscopists' Society of St. Louis held a very interesting meeting recently. The subject was "Honey," and many specimens were produced by the members. Of the several hundred samples of honey not one was imitation, but the majority of them were adulterated with such stuff as glucose, grape sugar, etc. Pure honey has the greatest amount of pollen, or dust from the flowers, which sticks to the legs of the bees as they gather the honey. The total absence of this pollen, which only shows under the microscope, is proof that the honey is a fraud. The grades are determined by the amount of pollen in each sample. The members will make further research and report at the next meeting. We trust the good work will go on, and we will help to break up this traffic in adulterated foods so hurtful to the sale of pure goods—something in which every farmer in the land should be interested.

The mischief-makers seem to have learned that it is too thin to say that honey is adulterated with cane sugar, as the former frequently sells for less than the latter, therefore they resort to grape sugar and glucose with which to adulterate their scandalous reports. Is it possible that the majority of the honey found on the St. Louis market is adulterated? If so, it is no wonder the St. Louis commission men are obliged to quote honey as low as 4½ cts. at times. Is it not possible that the St. Louis Microscopists' Society know less about honey and the resources from which it is obtained than they do about microscopes? and might it not be that one good chemist who knows how to analyze honey, would find less adulteration than a dozen microscopes? For my part I can not believe that dealers make such a wholesale practice of adulteration, and I feel sure that not one in a hundred of our honest honey-producers would resort to so vile a practice. The editor (I suppose) comments by saying, "We trust the good work will go on," etc., and at the same time he is publishing an article which is detrimental to the honey-producer and the honey-trade in general, in the very columns which he pretends to devote to the interest of bee-keepers. Would it not be more becoming in the editor and the Microscopists' Society to investigate and try to learn when and where this adulterating is done, and talk less about it until they can expose these adulterators, if such there be?

Bluffton, Mo. S. E. MILLER.

I do not know exactly where the trouble lies, friend M., but I am sure the statement is *not* true, that several hundred samples of honey were all adulterated with glucose, grape sugar, etc. I am very much obliged to you for forwarding us the paper. I have had some correspondence with the editor of the St. Louis *Journal of Agriculture*, and he is surely a good man, and I hereby implore him to lend us his aid to get at the truth of this matter. Let these microscopists and State chemists get some bees of their own, and see whether the honey the bees gather from the flowers is adulterated or not. They surely ought to do this, before they make wholesale statements so damaging to our industry. There are plenty of good honest men in the vicinity of St. Louis who are bee-keepers. Let them test some samples of honey directly from the hives, and then we shall know whether it is possible for a chemist or microscopist to detect the difference between grape sugar secreted by the flowers and that manufactured. We should be very glad indeed to have the bee-men in the vicinity of St. Louis help us in this matter, for such a statement as the above clipping must not go unchallenged the rounds of the press. Prof. Cook has influence among scientific men, and I wish he would help us to correct the error, for error or blunder it certainly is.

RAMBLE NO. 3.

SARATOGA SPRINGS.

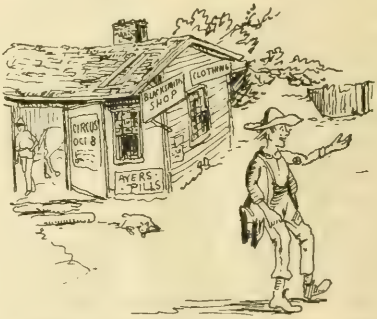
JOSIAH ALLEN, dropping into Saratoga Springs from a rustic locality, enthusiastically called it paradise; therefore when we entered the place we were also impressed with the increasing size and beauties of the place, though we were frequent visitors. Whatever there might have been of an æsthetic nature in my mind, it was shattered as soon as we entered the business portion; for the president could not pass a grocery store without exclaiming, "There is where I have honey for sale! This grocer is a live man." Then grasping me convulsively by the arm, and pointing, "That's my honey in that window; see my card attached."

Our stay in Saratoga was necessarily brief. Having had our dinner and a rest of an hour for the pony, we were on the road again, by Congress Spring, the famous Geyser, and the Spouting Spring, on toward Ballston Spa, another pleasant manufacturing village and summer resort.

Asking a person the distance, he replied it used to be six miles; but since the road has become such a thoroughfare for travel it has been beat out and stretched to seven miles. Six or seven as the case may be, it is a beautiful drive, and much enjoyed, if we may judge from the number of fine turnouts seen upon the road. Seven miles and not a bee-hive in sight. It is evidently a poor locality for the raising of honey.

At Ballston we commenced to inquire the direct way to the home of J. I. Parent, or to the town of Charlton. We were directed first to Hop City. We therefore made that our objective point, and anticipated the pleasure of passing through another thriving village, and perhaps a pleasant summer resort, with growing hops, and their aroma filling the air. The president seemed to have a strong objection to the smell of hops, and we had hardly got a mile away from Ballston when he began to smell hops.

The country here began to show signs of better soil and better crops. We occasionally passed small apiaries, and we judged, from the fields of buckwheat, that a great amount of honey came from this source. President P., however, could not get over the smell of hops. The aroma grew stronger and stronger to him, and I feared the smell would be too much for him. The last person we passed gave the distance—one mile—and we began to look for the spires of a city and the poles of hops. We at last drove up to a lone blacksmith shop, and inquired of a trampish-looking individual where we could find Hop City, when he exclaimed, "This are the place!"

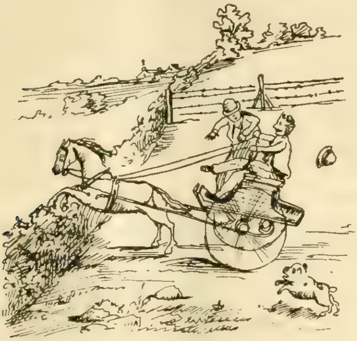


"THIS ARE HOP CITY."

In answer to the question, "Where's the hops?" he said, "Bless ye, there's ben no hops hyar, as I knows on." We drove on in silence for some time, when my companion remarked that it was an unusually fine day, but said nothing more about hops.

We now began to inquire for the residence of J. I. Parent, the noted bee-man. The first man in answer to our query said: "Keep right along until you come to the *end of the road*, then turn to the left, then to the right, and get further instructions from the next man you meet." Pony Nig began to speed out a little faster. She was evidently disappointed and disgusted over Hop City as well as the rest of us, and was doing her level best to shake the dust from her feet, when, sure enough, we came plump up against a wall at the veritable end of the road.

We, however, got ourselves out of this entanglement, and turned short off to the left, and soon found another long stretch of straight road. Our next query, and, in fact, several subsequent ones, elicted the same answer, "Keep right along until you come to the end of the road." The reason for so many ends to the road is obvious when we look at a map of Saratoga County. The roads in this locality are laid out in regular parallelograms; but instead of lying in regular order, every adjoining parallelogram is jogged down several rods, making a road quite difficult to follow to any given distant destination. Near sundown we drove up to the fine residence of Mr. Parent, and found a hospitable welcome.



END OF THE ROAD. OBEYING INSTRUCTIONS LITERALLY.

We had become acquainted with Mr. Parent at the Saratoga County Fair, where we found him enterprising enough to have on exhibition a fine lot of honey, also supplies, and black, Italian, and Holy-Land bees, in observatory hives. Mr. J. I. P. is the senior member of a family of five brothers and one sister. The father and mother are on the other shore, and the teachings of the parents have left here a Christian household which, we are sure, will be reunited in that better land, with not one left out. We think the entire neighborhood must partake largely of this nature, for the locality is known as "Peaceable Street." One of the brothers is a physician, and is building up a good practice right here in his country home. Another is preparing for the ministry. The rest, I believe, are agriculturists; and, while attending much to farm duties, J. I. makes a specialty of bees, having, if I remember aright, 100 colonies in the home yard, and 50 in an out-apiary. Mr. P. runs his apiaries for extracted honey, believing that less work is required than when run for comb honey. If his bees seem to be getting ahead of him while he is busy at some farmwork, he adds another story and tiers up until a lowery or leisure day comes, then all hands attend to extracting. Swarming, in a great measure, is kept down, and a large yield is obtained. Mr. P. also finds time to manufacture several thousand pounds of foundation, fully equal to the celebrated make of the Dadants. Mr. P. is the man who, a few years ago, got out material for 100 hives on a Barnes foot-power saw, and, though it took a great amount of kicking, he is enthusiastic over the machine. Bee and medical literature were sandwiched on the table, and no one need tire for material to interest. At the time of our visit, all of these young men and the sister were living in single blessedness. At a late hour we retired, and our slumbers were only occasionally disturbed by Pres. P. shouting, in his troubled dreams, about the smell of hops and Hop City. THE RAMBLER.

DOES HONEY EVER COME FROM THE BODY OF TREES?

SOME INTERESTING EXTRACTS FROM JOSEPHUS.

FRIEND ROOT:—In GLEANINGS for May 15th, 1888, page 387, you print a letter purporting to come from some newspaper reporter, relating to a tree which yielded great quantities of honey through a faucet inserted in its trunk. Of course, every sensible reader ought to know the whole thing as related by that reporter is a canard, and that such reporter certainly depended on imagination for facts. But from your footnote to that article one might get the impression the big bee-man, A. I. Root, thinks it impossible to obtain honey from trees, or that no tree will produce honey unless it is first deposited there by bees. Such an idea might be misleading, for it is well known that nearly all kinds of vegetation contain sweet in greater or lesser quantities. Go to a newly cleared piece of ground on a warm day in early spring, and you will find bees working about the stumps of newly cut trees, which would not be the case if there were no sweet to be obtained from the flowing sap. You have doubtless noticed how eager children are to lick the ends of hickory logs soon after cutting, and how even older people relish "sugar-water," and how poplar and other bloom yields or secretes honey so bountifully. This only proves that it is *there*—that the sweet (honey) exists in the different kinds of vegetation; and since it is so much more abundant in some kinds than others, may we not reasonably infer there may be such a tree that will produce honey directly from its trunk?

This, however, is only inference. But we are not left alone with inference for proof that such a tree exists. In "Wars of the Jews," Book IV., Chap. VIII., Sec. 3, Josephus tells us, in a certain plain "There are many sorts of palm-trees, different from each other in taste and name; the better sort of them, when they are pressed, yield an excellent kind of honey, not much inferior in sweetness to other honey. This country, withal, produces honey from bees," etc.

When I read the article referred to in GLEANINGS I wondered whether or not this reporter had seen one of the species of palm-trees referred to by Josephus, and endeavored to create a sensation by drafts upon his imagination. Josephus does not say honey came directly from the *trunk* of this tree, but that certainly is the import of the passage. I never saw this tree, but have wondered as to its nature. If it is porous, and the pores filled with honey, the tough or woody part must be of a soft nature to yield to pressure sufficiently to cause honey to exude. If it is no more porous than our oak or ash, I am unable to see how pressure could be applied to bring forth the honey. If only an orifice is necessary to let the sap (honey) flow, as with the maple, I see no necessity for the "pressure" of which this author speaks. But of its existence I have no doubt, and I should be glad to see a minute description of it.

GEORGE WISEHEART.

Iola, Clay Co., Ill., June 24, 1888.

Friend W., most of us know very well that the sweet substance exuding from certain kinds of hickory-trees will compare well with the finest honey known; but as you would have to sacrifice a valuable tree to secure, say, a teacupful of the honey, it would not be very practical. I am glad you called my attention to it, however, as it settles the fact that growing trees may yield nice honey. The important question in regard to the palm-tree honey is something like the above. Would you not have to sacrifice a valuable tree, besides the time and trouble ?

HEADS OF GRAIN

FROM DIFFERENT FIELDS.

HOW LONG MAY EGGS REMAIN AND YET HATCH OUT LARVÆ?

I SHOULD like to have this question answered: How long will eggs remain and then hatch out and make workers or queens? I took a queen out April 27th; 30 days after that date I found young bees and drones sealed up, and others about ready to seal. Now, this nucleus had a queen-cell all the time. In 33 days they had a virgin queen hatched. Will you be so kind as to give me some light on this? **BENJ. BOLINGER.**

Pleasant, Tenn.

Some years ago, friend B., quite a business was done in sending larvæ for queen-rearing, by mail. In our investigations at that time, we discovered that eggs would keep but a very few hours, when taken out of the hive ; and it can not be temperature alone ; for when the proper temperature is maintained, the eggs seem to dry or shrivel up, and are no good. It has been suggested that the bees keep the eggs covered with a milky food, especially when they are nearly ready to hatch ; and we had our greatest success when only a limited number of eggs was given to a nucleus or strong colony. The bees, in their anxiety to get brood, would cover these eggs, or minute larvæ, with a profusion of the milky food ; and in this condition, during the warm weather of midsummer, the larvæ would live without the agency of bees for between two or three days, but not often longer than two days. We used to charge 25 cents for a piece of comb containing larvæ of the right age. This piece of comb, in favorable circumstances, would give perhaps a dozen queens; but there were so many failures that the whole business was abandoned. I do not think it possible that eggs or larvæ can be preserved in any possible way so long as 30 days. Friend Doolittle, however, thinks the bees have a secret known to themselves, of keeping eggs or larvæ for a considerable number of days, when circumstances make it advisable for them to do so.—It is hard to explain the matter you mention. My opinion is, however, that more such cases are caused by a queen getting into the hive unexpectedly. Queens frequently get into the wrong hive after a wedding-flight.

FORCING BEES INTO SUPERS.

I have at present 60 colonies of bees. There is plenty of white and alsike clover in bloom, but not much honey yet. There seem to be a good many buds on the basswood, but it will be late. I clip all my queens before they commence swarming. When they leave the hive I move the old colony to a new stand, and leave the new one on the old stand. I then get my honey from the new swarm, but fail to get any comb honey from the old one. They get to be strong, but will not go above. They will fill the brood-nest full. If I extract it they will fill it again, but will not go above. It stops all after-swarming. What can I do to get them above? Would it be advisable to take out the frames that are filled with honey, lay them away for winter, and contract the brood-nest? Will that send them above? **W. G. WADSWORTH.**

Pittsford, Mich., June 30, 1888.

Contract the brood-nest to about 6 frames, as you suggest in your last paragraph, and put in dummies to fill up the vacant space. If your bees still fail to go above, put a section containing a little honey in the super. This will generally have the desired effect, if honey is coming in as it ought to come in in order to obtain surplus honey.

DON'T NEED CHAFF PACKING IN SOUTHERN MISSOURI.

On page 485, Mr. Agnew recites his experience on chaff packing. I wish to say to Mr. A. and others in our latitude (37 and 38), in what is termed the Mississippi Valley, and probably all south of this, unless it be in the Allegheny and Rocky Mountains, that we do not need chaff packing and cellar wintering. It is extra expense for no pay. I have had 19 years' experience here, and know what I am talking about. I always winter on summer stands; and if my bees are put in proper shape in September or October I would not give a nickel per colony to have them insured to winter. I have over 200 colonies scattered in different locations. We never lose any by spring dwindling. We lose some few in spring and fore part of summer, for lack of stores, swarming out, etc. **A. LISTON.**

Virgil City, Cedar Co., Mo., June 22, 1888.

THE GRAND RAPIDS LETTUCE DOWN SOUTH.

Brother Root:—I got of you two 5-ct. papers of Grand Rapids lettuce-seed, one of which I sowed the 6th of Febuary, in boxes, and transplanted in March. The other paper I sowed late. The first paper did well, and I should want no better lettuce for the table. The last sowed came up well, but the cut-worm played havoc with them. Only about half a dozen plants were left. I have some of the former planting seeding magnificently. They are "Grand," sure enough. It would make you glad to see how the lettuce grows in our sunny South. If no calamity comes upon the plants, I shall have more seed than I need. GLEANINGS comes to us always with much choice reading. You are doing a nobler work by its publication than promoting bee culture. **J. H. STRONG.**

Atoka, Tenn., June 19, 1888.

THE "GRAND RAPIDS" LETTUCE, ETC.

I see you make mention of the Grand Rapids lettuce. I sowed some seed in February that I received from you. Five stalks are all that I can see forming seed. They are 18 inches in diameter. I tell you they are beauties. Don't you think a deep pan or box, covered partly with wire, with glass in front, would be a good queen-trap for those who clip their queens? If the pan were set in front of the alighting-board, the queen would pass in but could not climb out, it being too smooth and steep. The pan would have to be shaded, if the apiarist could not be on hand. I should like to see it tried, but I do not clip my queens. S. HEATH.

Rimer, Pa., June 27, 1888.

Friend H., our old friend father Quinby developed the idea you mention in regard to keeping the queens in what he called a "queen-yard." I do not know how much it is in use. We have not heard much about it for some time.

THE SQUARE-FRAME QUESTION FOR DOOLITTLE.

A. I. Root:—I was greatly interested in Mr. Doolittle's article setting forth the advantages of a *square frame.* I should like to ask him if the Langstroth frame would not meet his views admirably as to the "springing" of bees, *if they could be stood on end?* Would not the cluster be more nearly "natural" in form than it would be in a hive carrying the Gallup style of Langstroth frame?

Des Moines, Iowa, June 19, 1888. J. M. SHUCK.

Mr. Doolittle replies:

For a small cluster of bees, no doubt but that the L. frame stood on end would do well, if only three or four were used; but when the cluster came to expand with its growth it would not accommodate them as well as the Gallup. A hive a foot square and a foot deep seems to come the nearest to the natural wants of the bee of any yet devised, and will give more swarms and more honey, if *properly managed,* than any other form known; while by contracting it, it can be made to suit the wants of any thing. All there is against such a hive is that it requires more work to rightly manage it.

Borodino, N. Y. G. M. DOOLITTLE.

A LET-ALONE HIVE, AND SOME OF ITS ADVANTAGES.

This part of Tennessee is along the foot of the mountains, and is very fertile. The meadows and roadsides are white with clover-blossoms, and the ridges are full of sourwood and chestnut. I never saw such an abundance of white clover. I asked a farmer whether it had been sown. "Sown!" said he, indignantly, "it is the worst *weed* we have." Just think of calling white clover a weed! Bees seem to do very well, but they are kept in box-hives, except in a few instances where the farmers have "patent hives," made with swinging frames and eight-pound glassed boxes in the cap. None of the farmers ever open the brood-nest, and I do not suppose that they could, as the combs must be built in every direction. Still, they are willing to pay $3.00 for the advantage of a cap worth less than 50 cts. This has suggested to me the propriety of a "Let-alone hive." What would a hive made of two Simplicity stories, with slats like top-bars of frames, *nailed* across the top of them for the combs to be fastened to, and furnished with T supers in upper story, cost? I know it seems wrong for a bee-keeper to suggest such a thing, but such hives would be better than box hives, and nearly as cheap. H. R. TALCOTT.

Williamsburg, Tenn., June 24, 1888.

Such a "Let-alone" hive as you mention in your letter would cost about the same as an ordinary hive—perhaps a little less. We would suggest to you, however, that a better way would be to purchase a regular movable-frame hive; and if you want the frames fixed permanently, nail them down and the bees can have it all to their own sweet will, if they like. The reasons you propose for the use of "a Let-alone" hive are very good; but a movable-frame hive might be "let alone" just as long as the bee-keeper chooses; but should occasion demand it, its inside condition can be examined.

DOES A VIOLENT CLAP OF THUNDER PREVENT QUEEN-CELLS FROM HATCHING? DOES IT HAVE A SIMILAR INFLUENCE ON DUCK EGGS?

Have you ever found in your experience, or heard through others, whether violent claps of thunder, such as accompany a discharge of electricity when it strikes, for instance, a tree near the apiary, would injure queen-cells about the time and just after they are capped? My reason for asking you is, that about the first of this month I had 18 or 20 nice queen-cells, some not quite capped over, and some finished. A violent thunder storm came up, and a large cottonwood-tree was struck about 300 yards from my apiary. The clap of thunder accompanying it was very loud and startling. Well, only two of those cells hatched, and those two have not laid up to date. The reason I ask the question is, we have had another storm since, and I have lost some more queen-cells. There is a current superstition among the negroes here, that thunder spoils duck eggs. A. W. TUFTS.

Musson, La., May 28, 1888.

Friend T., I do not believe that the thunder and lightning had any thing to do either with the queen-cells or duck's eggs hatching. A good many times, when queen-cells do not hatch, we have tried to get at some reason for it; and shaking, at a certain stage, will destroy the vitality of the cell. This fact prevents sending queen-cells by mail, which matter comes up every little while. The shaking must be quite violent, however, to kill the queen. At a certain stage, the embryo queen may be taken out of the cell, examined and put back again, without any apparent injury. I do not believe that thunder and lightning injure duck's eggs, for nature seldom makes a blunder of that kind.

SAWDUST FOR POLLEN, AND A REASON GIVEN AS TO WHY THE BEES GATHER IT.

Will you allow me to call your attention for a moment to your editorial comments on pollen from sawdust, May 15? You express a doubt as to its office. If you think for a moment, you will remember that one of the laws which govern the digestion and assimilation of food by the animal economy of man and beast requires that a certain per cent shall be of some woody or fibrous substance, which passes through the digestive organs unchanged, its office seemingly being a medium of carriage of the elements taken up by the secretive ducts; and as it is passed along through the abdominal cavity it carries with it the waste passed off by the organs which act in this capacity. We have read that a dog fed upon concentrated food, such as fine flour, sugar, gluten, etc., will starve after a certain time; also that animals transported by water, if deprived of coarse food, and fed on grain alone, soon devour pieces of wood, shavings, etc. In the American people, the use of concentrated food tells its tale in the horrors of dyspepsia. Why should we not find this same law extending to insect-life—the same wise power created both? The office of pollen, from whatever source it comes, then, is to provide this substance, which is insoluble. If you attempt to dissolve bee-bread in boiling water it will be found that a large portion remains intact. My observation convinces me that the mature bees use pollen for food as well as for the immature fed larvæ, or some substance as a substitute.

Bakersfield, June 4, 1888. W. A. WEBSTER.

Friend W., you are a scientist, and I have no doubt but that you are right. You do not mention graham bread, but I presume it comes in on a line with the facts you have given us. I know that horses and cattle must have hay or straw, or some substitute, and very likely it is, to a certain extent, the same with bees.

THE SMOKER WITH THE NEW VALVE.

The use of a loose valve in the Clark smoker is a great improvement, as the air enters the bellows so easily that there is comparatively no draft through the tube. On page 321 you say: "If the bellows be worked, fire-box downward, the valve drops, and does not immediately respond to the compression of the bellows." This can be easily remedied. To work the smoker with the fire-box downward is the most convenient way to use it; and to have the valve respond promptly when thus used, simply place the valve on the board next to the fire-box, and the weight of the valve will promptly close when the bellows ceases to expand. The heat from the fire-box does not hurt the valve, as the current of cold air continually cools it. E. KRETCHMER.

Coburg, Montgomery Co., Iowa, Apr. 26, 1888.

With us it is much more convenient to use the Clark with the fire-box upward; and hence for us the valve is better where it is. Perhaps it is habit.

CLOVER NOT KILLED OUT.

During the past winter a number of prominent bee-keepers have expressed the opinion that the dry seasons had killed out the greater part of the white clover, and that the honey crop was likely to be short this season. Experience in this locality proves that white clover is not killed by drouth. Last autumn, before the rains came, our pastures were as bare of vegetation as if grass had never grown there. In these same fields there are now more solid acres of white clover in bloom than I ever saw before. We have had abundance of spring rains, which, I suppose, accounts for it. Bees are doing well, with good prospects ahead.

Browntown, Wis., June 19, 1888. H. LATHROP.

HONEY-DEW THIS YEAR.

Since looking over your A B C book we have been having a great amount of honey-dew in the mountains of this latitude. I went into the woods to get a swarm of bees early in the morning, and found every thing covered that evening. I took a piece of oil cloth and spread it over some low bushes and brush, where there were no trees or brush over it—nothing but the clear sky. The next morning, before sunrise, I went to it and found it glazed over with a sweet sticky substance. I brought it home and washed it off, and it made the water quite sweet; so if your bark-louse exuded this sweetness it did it on the wing. Bees are doing remarkably well in this section.

W. L. SHIDELER.

Esculapia Springs, Lewis Co., Ky., June 24, 1888.

CARPENTER BEES—COPULATION, AS SEEN BY AN EYE-WITNESS.

The carpenter bees have been one of my earliest sports; and while I have never yet been able to see a queen-bee meet the drone, I did have the opportunity to observe the act between two carpenter bees, about the middle of last April, as I was working in my turnip-patch (you see, friend Root, I have a vegetable crop for recreation, work, and profit too, as well as yourself). I heard the hum of bumblebees on the wing, and, looking up and around, it was some time before I could locate them, though very soon two of them came tumbling down over and over to the ground. Thinking it was two of them fighting, as they often do, I started on with my work; but soon hearing them again, and looking, I saw them rising up from the ground in the air. I then, for the first time, noticed that they were in the act of copulation, and then I began to observe them more closely. I observed that they were male and female, the latter being more light-colored, and some larger. The twain rose in the air some 30 or 40 feet, and down they came again, pretty soon, to within a few feet of me. That they were attached as we often see the common house-flies, was plain to be seen. About the time I had made this observation they arose in the air, and time after time descended to near the ground; but not quite reaching it any more, they made off, circling up and down till 100 or 125 feet away, then they rose to a height of 75 or 100 feet, and flew pretty nearly level, as far as I could see them, some 300 feet away, and they were still attached.

The carpenter bee here in the South bores holes about ½ inch in diameter, in the spring of the year, into our hard pine-wood plate and rafters, under sheds and houses, and rear their young in them. Their holes are bored in about one inch deep, and then several inches at right angles, in the hardest of our woods. ABBOTT L. SWINSON.

Goldsboro, N. C., May 30, 1888.

THE SHRINKAGE IN SECTIONS—A GOOD SUGGESTION.

I have just been reading your article on page 454, in regard to the exact width of sections to fill the case, no more and no less, and that you had been severely censured by some one for having sections run ¼ in. scant to the foot. Now, it seems to me that any one who knows any thing of the nature of basswood would not make any such complaint, as it is very susceptible to dampness, and even a damp atmosphere affects it quite perceptibly. I always order my sections a little larger or wider than I want them, as I can easily make them narrower; but if too narrow I can not make them wider, and I prefer to plane the edges, as they will unavoidably be a little uneven, and I have a board made level with a cleat nailed on one end and side to hold the sections on edge, and I then take as many sections as I can plane well, from 25 to 50, and set them all together on edge against the aforesaid cleats, to hold them true; then with my plane (which every bee-keeper should have and know how to use) I take off a little from each edge, which makes them all smooth and even, and of the desired width, and does not affect the bee-space in the least.

Grandville, Mich., June 13, 1888. J. S. WARNER.

MILLER'S FOUNDATION-FASTENER.

In the comments made on my foundation-fastener, described in GLEANINGS for June 1, it is asked if the plate does not become overheated. When I notice it is getting too warm I remove the lamp, and continue working until the plate is sufficiently cooled. There is one point of importance in constructing the fastener. When adjusting the iron plate, set it so that it will press on the section at least ⅛ inch from the center, and slide along on the wood the rest of the way. It thereby heats the wood where the melted edge of the foundation strikes, insuring a firm adhesion. This is the best machine for the work I have seen in nine years' experience. It takes but a few minutes to get the knack of using it, and, once under way, it makes things fairly fly. Try one, and see for yourself.

Drownville, R. I., June 15, 1888. A. C. MILLER.

Very likely your arrangement, friend M., is a better one than the one I brought from Utica; but we certainly did not lay that one aside after trying it for only a few minutes. Our hands used it at different times, day after day, until they were not only disgusted with the machine itself, but, I fear, with myself also, because I told them I felt sure that it would work nicely when they got acquainted with it.

BLEACHING BEESWAX.

What is the best method for bleaching beeswax, in a sort of wholesale way? What is the best method for removing all dirt or settlings that may be in beeswax, so that it may be perfectly free from all impurities? J. LINGENFELTER.

Akin, N. Y., May 9, 1888.

Friend L., we can not tell you very much about the bleaching of beeswax, for it has been decided by abundant experiments that the bee-keeper who uses it for making foundation does not want it bleached, even if it could be done for nothing. The best way, I believe, to remove its impurities is to keep it melted for some time in oblong tanks so the dirt can quietly settle to the bottom. The old-fashioned way of bleaching beeswax was to expose it to the light of the sun, in thin sheets or ribbons. The modern way, I am sorry to say, has been by putting in paraffine. Nobody wants any paraffine in foundation, however, especially after he has tried using the combs made therefrom during our hot summer weather.

THE NAMELESS BEE-DISEASE, PROBABLY.

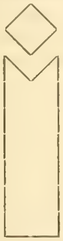
Many bees with me, fully grown, are dying, without apparent cause. Many, as they emerge from the cells, are dragged out, and thus lie around till death relieves them. A quivering, or shaking, as if from extreme weakness, is one of the most striking symptoms. Several colonies thus waste away just about as fast as they increase in numbers. Pasture could hardly be better. About one-half, say 50 out of 120 colonies, are storing surplus rapidly, while the others, with full and great abundance of flora, drag on just about "so so." I have changed boxes, always scalding out clean, many times, those worst affected; but this gives no relief that I can perceive. With this disheartening state of my little companions and fellow-workers, and the continuous attacks upon the whole place, and especially the honey in the hives, of multitudes of ants, leaves me at times well nigh subdued or whipped out. The most effective remedy with the ants I find is coal oil, applied upon them wherever found in numbers or scattered, and also in their dens. I apply this with an atomizer, so that many ants may be dosed with a small quantity of oil. Prescribe for the ills of my bees, if a remedy is known. B. C. VANDALL.

Monterey, Cal., May 20, 1888.

From your description I should say your bees have the nameless bee-disease, described in the A B C book; and the only remedy we have discovered so far is to give the colony another queen. When the new bees hatch, so far as my experience goes, there will be no more of the quivering or shaking. It seems strange, however, to think that there can be fifty colonies in your apiary, thus affected. I would advise you to try getting queens from some locality where the trouble has never been known.

ANOTHER SECTION-FORMER.

As there are so many patents being applied for on section-folders, I want to tell you how I make one, before somebody gets a patent on it and compels me to pay for a right to use it.



Take a box, such as you pack 500 sections in; turn it up edgewise and sit down astride. Fasten a board or plank, 1¾ thick, to the front end, so as to come high enough to be convenient to work. Make a sort of bootjack in the top at an *exact* right angle, thus. Tack a piece of board on the back side, high enough so that the upper corner of the section when folded will come a little above it. Now put a handful of sections in your lap; take one in the left hand, and press the middle joint firmly into the bootjack (I can't think of any better name). Bend one end in before lifting the left hand, then the other. A few light raps with a mallet or hammer will give as square a section as can can be made with any folder. For small children to use, I would put a small block at the upper corner, so that the ends could not be bent in too far. I have not broken a section in using mine. This might be improved by having a bench and foot pressure to fasten the ends.

Saybrook, O., June 5, 1888. S. H. HOUGH.

WHY IT PAYS TO HAVE HIVES MADE BY THOSE WHO MAKE IT THEIR BUSINESS.

Mr. William Ostrander has been having ten Simplicity hives made at our sash and blind factory, in this place—not got out as true and complete as yours; and when put up they don't look much like yours, true and nice. Yes, it pays to do things well, therefore I don't want them, and shall send to you for more goods when I can. Do you like the Alley drone and queen trap? and is it all they claim it is? Will it prevent swarms getting away?

Unadilla, N. Y., June 15, 1888. I. R. GREEN.

No, friend G., it does not pay to have hives made at an ordinary planing-mill, where the machinery is ill adapted to the work, and the men are not properly schooled as to the importance of certain hive-fittings.—In regard to the Alley drone-trap, notice what we say in recent issues of GLEANINGS, in Notes and Queries.

OUR QUESTION-BOX,

With Replies from our best Authorities on Bees.

All queries sent in for this department should be briefly stated, and free from any possible ambiguity. The question or questions should be written upon a separate slip of paper, and marked, "For Our Question Box."

QUESTION NO. 64.—*When should combs ordinarily be extracted—when just sealed over, partly sealed, or when sealed for some time, in order to get the largest returns in dollars and cents?*

When partly sealed. **L. C. ROOT.**

When partly sealed. **GEO. GRIMM.**

When ripe, regardless of cappings. **DADANT & SON.**

When filled. They need not be capped. **CHAS. F. MUTH.**

Extract when the combs are full of thick honey, sealed or not sealed. **E. FRANCE.**

That depends. Ordinarily, I should say tier up and extract at the close of the season. **MRS. L. HARRISON.**

That's a tough one. Perhaps partly sealed, if it is well ripened afterward; otherwise, when sealed some time. **C. C. MILLER.**

It depends upon the season and locality. Sometimes honey is ripe before it is sealed, and sometimes it is sealed before it is ripe. **DR. A. B. MASON.**

Not so much sealing will be necessary if you work the tiering system with shallow combs, just as it should be worked. You see, all depends. **JAMES HEDDON.**

This is one of the vexed questions in bee culture; but in my practice it has been impossible to get combs any further along than "partly sealed" before having to extract them. **O. O. POPPLETON.**

If the bee-keeper will never market till fully ripe, and will keep in open vessels in a warm room, then decidedly just as the bees begin to cap it. I have tried this for nineteen years. **A. J. COOK.**

Looking to immediate returns, extract as fast as you can; but if you wish to build up a permanent market, and produce goods fit to eat, leave the honey in the hives as long as you can. **P. H. ELWOOD.**

When about one-third sealed. I put the honey in tanks holding 200 gallons, let it settle for two days, and fill the barrels from a faucet in the bottom until one-third of the honey is left, and this I allow to ripen in the sun. **PAUL L. VIALLON.**

I think this should depend upon the judgment and good sense of the apiarist. Extract when sufficiently ripened, whether sealed or partly sealed, or not sealed at all. Even sealed honey is not all equally well ripened. **H. R. BOARDMAN.**

I should say, when three-fourths sealed. At that stage it is sufficiently ripened to make first-class honey, and the bees will be doing more efficient service by refilling the combs than by working to cap over the remaining cells. **R. WILKIN.**

"My voice is still for war" against the practice of extracting unsealed honey. As long as we let the boys extract raw honey, so long raw honey will get on the market, and demoralize things; and the dollars and cents will stay in the ought-to-be consumer's pockets, instead of skipping into our pockets. **E. E. HASTY.**

That depends. If you can get more for a choice article of honey than for a poor or ordinary quality, or, if you are making a business of honey-production and want to keep all the bees you can, profitably, it will pay you to have combs enough to leave the honey on the hive until it is thoroughly ripe. I seldom extract honey until the combs have been entirely sealed for some time. **JAMES A. GREEN.**

When partly sealed over, in my opinion; yet I am free to admit, that the best honey comes from those which have been sealed over for some time. The thing that makes me say "partly sealed over" is the money part; for I can sell as much of the one kind as I can of the other, as the public is not as discriminating as bee-keepers are, on just what constitutes really nice honey; at least I find it so in this locality. **G. M. DOOLITTLE.**

It is a little singular how often the words come in, or something equivalent, "That depends." Whoever produces honey or any thing else ought to strive to please his customers. I confess to a very great liking for honey left on the hives until long after it has been sealed. But suppose the bee-keeper wants his money, and suppose he does not get as much honey by this course. Dadant suggested, some time ago, that one would get just as much honey by piling up the combs in extra hives until the whole crop of the season was collected (and I am very much inclined to think he is right), and then extract it at your leisure long after the flow is over. This is the kind of honey for me, even if it is a little darker in color than that thrown out just when the cells are partly sealed. It is a great deal more work, however, to extract it—at least, it has been so with us here, and it ought to bring a larger price. Like friend Hasty, I am "still for war" against raw honey or green honey. Let us have it ripe and rich, dried down until it is solid heavy, and free from all objectionable flavors. There is very little honey to be bought which I should call really "gilt-edge." Of course I am now speaking of extracted honey; and I suppose the principal reason is, that the bee-keepers can not afford to let it get ripe. At our conventions, samples have been exhibited, ripened by artificial means, perhaps fully equal to any. Prof. Cook alludes to this in his reply.

QUESTION NO. 65.—*Is it advisable to extract raw nectar from unsealed combs, and ripen the "green" honey artificially? If so, what sort of apparatus is best for the purpose?*

No. **GEO. GRIMM.**

No. **MRS. L. HARRISON.**

I have had no experience in ripening extracted honey artificially. **H. R. BOARDMAN.**

No; but it will pay to wait till bees commence to seal, then proceed as suggested in 64. **A. J. COOK.**

I don't think it advisable to extract thin honey, to be ripened artificially. We have no apparatus for the purpose. **E. FRANCE.**

No—not nearly as advisable as to get the honey ripened by the bees, on the tiering plan; not so cheap nor as good. **JAMES HEDDON.**

No. The bees ripen it best. The apparatus is a good thing to talk about, but have you ever seen a crop of honey ripened with it? **P. H. ELWOOD.**

Not if it is to be sold for eating. The market for extracted honey has been injured, and in some localities spoiled, by selling unripe honey. **DR. A. B. MASON.**

We do not like to extract raw nectar, but we know of successful and practical apiarists, friend Muth for one, who do so, and succeed. Read what he has to say about it. **DADANT & SON.**

Not ordinarily, at least. This would not produce a first-class article; but under certain circumstances I think it would pay well with a process of ripening, sufficiently rapid and inexpensive. **JAMES A. GREEN.**

I don't know whether it is best to let the bees ripen it, but I *think* it can be ripened artificially. For a small quantity, set it in a stone crock on the reservoir of the cook-stove. A good place is in any hot room, or in an attic next the roof. **C. C. MILLER.**

This is not advisable, as, unless you use artificial heat, the raw nectar would ferment, and this artificial apparatus is where the profit would go to, then you would produce a syrup which would not taste much like honey, as it would be lacking the formic acid to which honey owes its peculiar taste. **PAUL L. VIALLON.**

I would not advise it for the average bee-keeper. This is a method which I have investigated very largely and thoroughly. That the raw nectar may be taken from the combs, and evaporated as perfectly as can be desired, I have proven beyond a doubt. Yet on the whole I do not advise the practice. **L. C. ROOT.**

I have sometimes done this, yet I hardly think it advisable. In ripening, I use the extractor-cans as sold by A. I. Root, filling them full in the chamber of my shop where there is a great degree of heat. Tie a piece of cheese-cloth over the top, and leave it 5 or 6 weeks, when, as far as consistency of body goes, it will be equal to the very best, but not as to flavor. **G. M. DOOLITTLE.**

Not unless the yield of honey is so enormous that the bees themselves can not manage it. I have no such apparatus as alluded to. By the way, I think that it's going to be held in the light of the latest science, that nectar ripened artificially is not honey. It must first have its proper portion of secretion from the bees' honey-glands, and have its cane sugar changed to grape sugar in the laboratory of the bee's honey-pocket. **E. E. HASTY.**

There is much more ado made about raw, or green or unripe honey, than facts warrant. Honey gets its flavor from the blossom, and the watery parts evaporate in open vessels, perhaps not as fast, but as perfect, as in the hive. The more surface there is exposed to the air, the faster is the process of evaporation. The ripest, heaviest honey is in the bottom of the can or tank, pressing upward to the surface the watery parts until the evaporation or ripening is complete. No flavor is lost thereby. What experienced bee-keeper has not extracted from capped combs, green, raw, or watery honey? **CHAS. F. MUTH.**

Ordinarily it is not; but with us there are two cases in which it is advisable. One is when the bees commence storing fine honey from sage, all the mixed varieties should be quickly thrown out clean to keep the better variety distinct; and so at the close of the season, when sumac and other inferior honey begins to come in, all the fine honey should be thrown out, to let the bees fill up with second grade for winter use. To evaporate such honey I use 4 tin pans 12 feet long, 6 feet wide, and 1 foot deep, set on inclined ground far enough apart so that the honey may flow from the bottom of the upper one through a two-inch pipe entering on the top of the next one below, so on to the last one. I paint the outside to prevent rust. A 1 x 2 piece of wood around the top serves to stiffen it. Four 6-foot strips across the top, screwed to the side strips, serve to hold the sides from bulging. I cover with thin muslin. In a wet country it would have to be thick, and put on roof fashion. These pans, or evaporators, contain about 2½ tons each. I let the honey stand thus two to four weeks, then draw from the lower one, letting all above follow. A molasses-gate on the lower end of each pipe controls the contents of each pan. **R. WILKIN.**

The answer to this depends much on locality and on the duration and quality of each honey-flow. In Iowa, where the air is very dry, the bees are able to cure the nectar so rapidly that it is seldom enough green honey is ever in the hives at a time to pay for taking it out; while in Florida, where the air is not only damper, but where the main honey-flow comes in the rainy season, it is seldom that sealed honey is ever cured as it ought to be, and some of the most successful bee-keepers there run their entire crop through sun-evaporators, and seal their barrels up tight as soon as full.

The character of each flow of honey varies greatly, and necessitates different management in this respect. Some bee-keepers, good ones too, have practiced letting their honey remain in open vessels for some time, and consider the honey so handled as having been artificially ripened; but they are as wrong in calling it so as they would be to call a hive, when covered with coarse straw, a chaff hive; and the opinions of these persons are not really pertinent to the correct answering of this question. I understand that Mr. L. C. Root, two or three years ago, conducted some exhaustive experiments to determine for himself the correct answer to this very question, and I should like it very much if you could secure from him an article giving his experiments, and the opinions he formed from them.

A small amount of thin watery honey is always present in any honey just extracted, whether from sealed or unsealed combs, and this should never be run into barrels with the rest of the honey. I used deep tin cans (about 4 feet deep) into which all honey was run from the extractor, and then drawn off through gates at the bottom into barrels after having stood as long as I could spare the use of the cans, never for a less time than over night, and never drew so but what from 6 to 12 inches of honey would be left in the cans. By so doing, all thin or watery honey, having risen to the top, was not drawn off with the rest. Of course, this was not curing or ripening honey, but simply a process that all extracted honey should pass through. No honey should ever be run directly from the extractor into barrels.

It is impossible to answer this question so it will be a guide to all locations and conditions; and, except the experiments made by Mr. L. C. Root, I know of none on an extensive and thorough enough scale to enable any one to answer it by a decided yes or no. O. O. Poppleton.

Well, I declare! I did not know that any experiments had ever been made of so much value as those mentioned by friends Wilkin and Poppleton. So, friend W., you have really put into practice this matter that has been so often talked about. Besides, you have given us a reason that I have never thought of before, for evaporating honey by artificial means. No one can for a moment say that this reason is not a good one. Get out the common honey, by all means, in order to make room for the sage. Very likely it would be better to throw it away than to have it mixed. When it is out, we certainly want to make the best use of it possible, and in such an emergency I can think of nothing better than your four tin pans, arranged as you mention. Why, the idea is a grand one, and I verily believe that, even in our vicinity, we can with such an apparatus, greatly improve the biggest part of the extracted honey on our markets. I should think there would be one objection to covering the cans with cloth. The cloth, even if very coarse and porous, would interfere with the circulation of the air; and without this circulation of air we can not evaporate honey or any thing else to good advantage. As our greenhouse is extremely hot in summer, I thought it would be a good place one fall to evaporate green corn. Well, to my great surprise and disappointment it did not work any thing like as well as to put the corn outdoors in the wind. The corn in the greenhouse got very hot; but instead of evaporating, it just soured. When the bees send a draft of air through the hive on a hot day, they know exactly what is needed. While we are considering this subject, we should be very glad indeed to have friend L. C. Root give us an article on this matter of evaporating raw nectar. It may help us a good deal to know the ground he has gone over.

Question No. 66.—*If an affirmative is rendered on Question 65, could more, and about how much more liquid honey be secured than by the other methods of waiting for the bees to seal the combs?*

See No. 65. H. R. Boardman.

No more if the plan I suggest is adopted. A. J. Cook.

Not any more ripe honey will be secured by either method. Dadant & Son.

Yes, I think so—perhaps one-third of honey, but not more money in a long run. E. France.

I think some more honey would be obtained, and I will guess about 20 per cent more. R. Wilkin.

At present I could only guess at this. Some time I hope to be able to say definitely. James A. Green.

No more honey can be obtained at the same cost (no, not as much), as by the tiering process, rightly managed. James Heddon.

This is a matter for experiment; and as I am convinced of the non-advisability of it, I would not think of giving it a trial. Paul L. Viallon.

Where the honey-crop is moderate or small, I am rather incredulous about any more pounds of a well-ripened article being secured. E. E. Hasty.

It is impossible to give a correct answer to this question, as it depends so much on the varying characters and durations of the honey-flows. O. O. Poppleton.

I can only shut my eyes and guess. I think not such a great deal more would be obtained, but you could get along with fewer combs. C. C. Miller.

More honey can be secured by extracting before sealing begins; how much more is hard to tell, as it must necessarily vary with the temperature. Geo. Grimm.

It is possible that more honey can be produced by extracting uncapped combs, but I am not certain that it is true. But labor is saved, and not at the expense of the quality. Chas F. Muth.

I have demonstrated, beyond a doubt, that more honey can be secured. I think about 20 per cent more. I think it much more desirable to keep a few more bees, and allow them to do the work. L. C. Root.

What I think is something strange, is that, while this honey will thicken up, as I speak of in Question 65, yet, as far as I ever could detect, it does not decrease in bulk any. Others about me have noticed the same thing; yet why it is so, neither they nor I can tell. G. M. Doolittle.

There would be more honey. Bees usually work with more energy when extracting is done frequently; and unless the hive is large, extracting helps in furnishing a large surface for storing and evaporating the thin honey. Some honey is also saved by not having to seal the comb. It would be difficult to tell, without experiments, how much difference there is in yield of honey; but the great difference between the two methods is usually in selling thin honey instead of thick. P. H. Elwood.

Like many of the rest of the friends, I can only add that I do not know positively that any more honey will be secured by taking it out when thin—that is, good honey. You will get more pounds as well as more gallons of the thin watery stuff, and a great deal of water may be taken out of thin honey. A few days ago my wife complained that a can of maple syrup just opened was not as thick as it ought to be. So she boiled it down a good lot. But some of the children suggested that it would be better still if it were boiled down more, and so she boiled out another good lot of the water it contained. It was then just splendid, but we did not have any thing like a gallon. What we did have however, was heavy, like lead, compared with the thin stuff we started with.

JUVENILE DEPARTMENT

Every boy or girl, under 15 years of age, who writes a letter for this department, CONTAINING SOME VALUABLE FACT, NOT GENERALLY KNOWN, ON BEES OR OTHER MATTERS, will receive one of David Cook's excellent five-cent Sunday-school books. Many of these books contain the same matter that you find in Sunday-school books costing from $1.00 to $1.50. If you have had one or more books, give us the names that we may not send the same twice. We have now in stock six different books, as follows; viz.: Sheer Off, Silver Keys, The Giant-Killer; or, The Roby Family, Rescued from Egypt, Pilgrim's Progress, and Ten Nights in a Bar-Room. We have also Our Homes, Part I., and Our Homes, Part II. Besides the above books, you may have a photograph of our old house apiary, and a photograph of our own apiary, both taken a great many years ago. In the former is a picture of Novice, Blue Eyes, and Caddy, and a glimpse of Ernest. We have also some pretty little colored pictures of birds, fruits, flowers, etc., suitable for framing. You can have your choice of any one of the above pictures or books for every letter that gives us some valuable piece of information.

CONDUCTED BY ERNEST R. ROOT.

IN the last Juvenile Department I called for your experience in swarming. For some reason or other we find only three or four letters pertaining directly to the subject. We are sure that bee-keepers' children must necessarily have had some experience in hiving swarms. It is not too late yet; and we hope, in the next Juvenile Department, to have lots of juvenile letters, detailing experience in hiving swarms. To every little boy or girl who will make such a report we will send any mailable article on the five-cent counter, between now and a month from date.

SOURCES OF POLLEN, ETC.

My papa has been keeping bees for 3 years. He has fifteen stands. They have wintered nicely. Their first pollen was March 27. It was from hazelnut bloom. The pollen was yellow. The next was pussy willow; next, soft maple; the next, elm. My little brother, 8 years old, and myself, went to the woods and watched them. We are to have one stand this summer for our own.

GLEN ARNOLD, age 10.

Danville, Ind., Apr. 10, 1888.

COAL TAR ON CORN.

Put coal tar on corn before planting, and crows will not pull it, nor hens eat it. We planted a field some time since, with one corner without tarring, and the crows pulled it in spite of all we could do, leaving the tarred untouched. Soak before tarring it, or it will come slow. My brothers take GLEANINGS, and I want to know if "The Boys' Bee-hive Factory" is true. HERBERT C. KIBBE, age 12.

South Cuyler, N. Y., May 24, 1888.

It was true, and yet it was not true. In general it was true, but in detail it was not true.

FROM A LITTLE GIRL WHOSE FATHER WAS A SEA-CAPTAIN.

My mother has 20 swarms of bees which are, at present, making honey very fast. They make it of the palmetto-bloom. It is very clear and thick, but the market here is poor for honey, as it is a small place, and a good many people have bees, so the honey stays on hand a long time. As the former owner of the bees died last September, there was no one on the place to take care of them, consequently they were in bad condition this spring, being filled and overpowered by the bee-moth. My mother, who had lived with them several years, had to assume the care of the bees, after having them transferred to clean hives.

Mother took out, in the past week, over 20 gallons of beautiful honey, and also made 7 pounds of foundation. She has, in addition to her own bees, 20 swarms of bees to take care of for Mrs. N., who is a very feeble old lady, needing much care, being almost blind. It is my mother's first experience with bees, and she thinks she could do well with them if she could find a good market for the honey.

This is my first letter. I am 12 years old, and was born in Prince Edward Island, Canada. My father was a sea-captain, and was lost at sea six years ago.

Manatee, Fla., May 30, 1888. MAGGIE J. GRADY.

SPRINKLING SWARMS; 11 LBS. OF HONEY PER DAY.

My papa is pastor of the Methodist church here. He keeps bees, but has to sell out when we have to move. Last year he had 46 hives. We had to put the third story on several. We caught some black bees, and a neighbor sent four new swarms. Papa sent to Mr. Viallon and got some Italian queens for them. It's funny to see the little yellow and black ones together. We get our hive material from Mr. Viallon, as papa can't send away off for any thing, as we can get it in our own "sunny South." Mamma and I hive the bees when papa is gone. We sprinkle them well with water, and never lose a swarm. We have a fine crop of horsemint this year, and our hives are nearly full. This "Texas honey-plant" lasts from the 20th of May to the 1st of July. Some of our swarms gather 11 lbs. of honey per day during this time. We like to read GLEANINGS, as you give such nice little sermons. BIRNIA LITTLE.

Waxahachie, Tex., June 22, 1888.

Your papa does just right in sending to Mr. Viallon for supplies when you live so near him. We are glad of the little fact you give in regard to sprinkling swarms with water. We have never done it up here yet; but from the reports given by the little folks it would seem that the sprinkling does have some effect in inducing them to settle. We are especially glad to know that you have a good crop of honey from horsemint this year. This is very encouraging and gratifying, especially when reports in our Honey Statistics are so unfavorable in this issue. Eleven pounds of honey per day is a pretty big yield. Who among our little folks can report a bigger one as the work of their own bees in their own locality?

THE COLORS OF POLLEN.

I am a boy nine years old. Papa has kept bees for more than eighteen years. His bees wintered "right well," last winter; he lost a couple of light colonies and one good one. This is a late spring. The first pollen came in the 30th of March. The color was bright yellow. The next was from maple. April 5th, the color was light green. Elm came the 19th; color, dark green; dandelion came in the 24th; color is light red; the 26th, apricot commenced to open. The color of it is brown. The bees are doing well. Every thing is about two weeks late. B. F. WAGGONER.

Carlisle, Pa., April 27, 1888.

CROWNING THE MAY-QUEEN.

I have herded 47 sheep and 21 lambs for quite a while, but now they are taken off to another shepherd.

My father has been sick for quite a while. I thank you for the book which you sent me last winter. I have read it through two or three times, and it was very interesting to me. It was May-day here a week ago. We had a queen and her five attendants, and a king and his five attendants. The first thing in the morning we all gathered at the meeting-house. We then all marched up to the ball-ground, and the brass-band played on the way. When we got up there some of the boys picked flowers to crown the maids, while some were playing games. We all gathered together at the call of the brass-band, then we all marched back to the meeting-house, where the king, queen, and their attendants, braided the May-pole.

Fairview, Utah, May 23, 1888. MAY LARSEN.

THE LITTLE BOY WHOSE PAPA INVENTED A SWARMING-BOX.

This is the first time I have written to you. My father has kept bees ever since I can remember. He used to take GLEANINGS, but let his subscription stop. He thought it was the best paper for bee-men. The bee-birds and cat-birds take some bees around here. The cat-birds are just as bad as the bee-birds. We had three swarms Sunday. Two settled together. My father is the inventor of Kaler's swarming-box. We have 35 swarms. Our bees never rob each other. I should like to correspond with the boys and girls of the Juvenile Department.

Andersonville, Ind. FRANCIS W. KALER.

Yes, we remember your papa in his connection with the swarming-box, quite well. We are real glad that we have heard from his little boy. But you didn't tell us how *you* liked the swarming-box your papa invented, nor whether you can hive swarms with it alone. Won't you tell us about it in your next letter?

HOW LEAH'S PA HIVES SWARMS; AND LOTS OF OTHER GOOD THINGS BESIDES.

My father has 27 stands of bees. He had 5 that swarmed this spring. One day he had three swarms. I will try to tell you how he hives them. First he puts his hive where he wants it, and then he sprinkles water on the bees. He then saws the limb off, if they are high on a tree, and then shakes them in front of the hive. I help him with the bees. I like to work with them. One day he was away, and a swarm came out and we did not know it till he went back. I went to the hive to look, and they got after me and chased me around the house, through the house, and down into the shop. There were five that stung me. They are working on the red clover and persimmons now. I have five sisters and two brothers. My eldest sister is married, and calls her youngest baby Amos, so you have a namesake. My father buys his supplies from you. He got a wheelbarrow from you this spring. We like it very well. My father takes GLEANINGS. We could not do without it very well. I like to read the little letters in the Juvenile Department.

LEAH H. YODER, age 12

Mattawana, Pa., June 22, 1888.

A DUCK-EGG STORY.

As my brother Perl was coming home from work Thursday evening, May 3d, just as he was crossing the large bridge over Pleasant Run, which runs about 24 rods from our house, he saw a duck-egg lying in the water. He went and got the pole that he generally gets the duck and goose eggs out of the water with, and then went to get the egg out. He noticed that, every time he touched it, it would float quite a way; he also noticed that there were several little fish, that would average about 2½ inches in length, swimming around the egg. When he got it to the bank he picked it up, and, turning it over, saw that the shell was crushed on that side, and that the "white skin," which is next to the shell, had a slit in it about 1½ inches long. Looking in he saw that it was full of fish averaging about 2½ inches in length. He brought it over to the house to let us see it. We asked him how many there were in it, and he answered, "I think there must be as many as 6 or 7," and then he emptied them out to count them, and the egg was eaten out entirely clean, and only one fish was alive. There were 13 in all. When he took them over to let Fred (who lives a little way the other side of Pleasant Run) see, as he came back he put the fish that was alive back in the creek, so it would live.

Fred wintered his bees all through. He had only to feed one stand, a little before the blossoms came.

NETTIE H. CRANSTON.

Woodstock, O., May 9, 1888.

Your little story is quite interesting—the more so, because it is true. Evidently fish like eggs as well as we do. I wonder if they thought they had found a bonanza.

OUR APIARY.

Come walk with me this morning
Thro' ranks of splendid trees,
And see the fair bright palaces –
The city of the bees.

Green and blue, and some like marble;
Others red and pink and white;
Around us and far in the distance
They rise upon the sight.

They work through all the summer,
And their bright treasures hoard;
With honey pure and wholesome
We crown our sumptuous board.

We leave them stores for winter,
And keep them so snug and warm
That they fear not our northern climate,
And never feel the storm.

We think of the bees of our childhood,
Around our homes' retreat;
Their songs were perhaps as pleasant,
Their honey just as sweet.

They toiled like these all summer,
In rough, unpainted hives;
They gathered all the choicest sweets,
Then yielded up their lives.

As you walk with me this morning
Thro' ranks of leafy trees,
You may see how scientific care
May bless the honey-bees.

Malone, N. Y. MARIAN A. BIGELOW.

OUR HOMES.

Say not unto thy neighbor, Go, and come again, and to-morrow I will give; when thou hast it by thee.—PROV. 3:28.

IN the Old Testament we read over and over again, "And the Lord spake unto Moses, saying;" and a great many times the words are added, "Speak unto the children of Israel," indicating that God had some message he wished Moses to deliver to the children of Israel. The children of Israel were free agents, remember. God gave them commands what to do; and although they were his creatures, we readily understand by history that it was their privilege to obey him or not, just as they chose, and a good many of them chose to disobey. In one place he says to them, "Thou shalt make thee no molten gods." The command was plain and direct as any thing could be; and yet Aaron very quietly informed Moses that he gathered up their gold and put it in the fire. When it was molten it assumed the form of a calf; and straightway they set to work to worship this molten god. We learn, also,that the God of Israel was patient and longsuffering. Notwithstanding their stiffneckedness and repeated disobedience, God strove with them, as it were, and sent communications to them. There were doubtless many among the children of Israel who felt it a pleasure to do God's will, and who gladly received these messages, and set about fulfilling them joyfully, just as there are people nowadays who delight to do his will. These same people, however, often disobey God's commands, and doubtless displease him, by a sort of carelessness or heedlessness. They commit grievous wrongs—at least as we stand outside and look on, their acts appear to us to be grievous wrongs—and yet they do not seem to be particularly conscious of having done any thing out of the way. I don't know but our talk to-day would more properly come under the head of "Neighbors" instead of "Our Homes;" but to me, Our Neighbors and Our Homes are so intimately connected that I can not well speak of one without speaking of the other.

Well, I fell to wondering the other day whether it were not true that God speaks to people nowadays as he spoke to Moses in olden time. Does he say, with that still small voice to the hearts of men, "Speak thus and so to the people"? I certainly hope it is true that the sermons which each pastor delivers to his people on the Sabbath day are the messages that God has committed to his care, to be spoken and made plain to his people. And while I ponder on this matter, I have wondered what it was that God would have *me* say to *my* people; for the letters I receive daily assure me over and over again that these messages through these Home Papers are received by quite a multitude; and I hope it *is* God's Spirit that prompts and directs them. If this be true, the message he desires me to deliver to you to-day is in the line of our opening text—"Say not unto thy neighbor, Go, and come again, and to-morrow I will give; when thou hast it by thee."

It is only a few days ago that I discovered there was such a passage in the Bible. But just as soon as I heard it read I said at once, "I am sure that God wishes me to talk to my people on this very matter." It is a little strange, too, dear friends, for I do not know my people as the pastor of a congregation knows his people, most of them, individually. A great many to whom I speak, I do not know at all; and yet I feel that God gives me a message to deliver to them. I do not mean by this that my readers are probably composed largely of a class who do not pay their debts; and I do not mean, either, that God wants me to find fault with you, and reproach you. The message he would have me deliver is, without question, a message that will help to make you better and happier—a message that will show you how to enjoy life better, and to appreciate God's gifts more than you have heretofore done.

The principal thing that has suggested this topic to me is the fact that I see people so often made to wait for their money after they have delivered their goods or done their work. We tell a man, for instance, we should like to have him do some work for us. He goes to work and finishes it, perhaps delivers it, and stands waiting for his pay. Now, before giving him orders to do said work, we ought to have had the money right in pocket, ready to pay for the work, or else we should have made arrangements so he could have it promptly. A great many times, however, he is desired to call some other time. We have not the money by us, or it is not convenient. Sometimes he waits and waits. May be he is backward about asking for his money. Saddest of all, a good many times he *never* gets it. You all know how it is, friends. People toil hard; they work painfully through fatigue or ill health, a great many times, in completing the work they are set to do. They use their own tools, and perhaps buy their own material, fondly hoping they shall have the just reward of their hard labor of brain and muscle. Now, is it not a sad thing to be obliged to go without it? It is wrong and unkind to oblige the one who has done the work, to wait at all. In fact, one real source of happiness to me lately has been in contriving to pay people for what I purchase of them, the very minute the goods are delivered. Sometimes I take real comfort in paying them a little *before* the goods are fairly delivered. Let me illustrate:

In our neighborhood, a good many of us are trying hard to see who can have the first nice potatoes on the market. I have told you how I have worked to get mine ahead, protecting the vines from the frost, after having started them in the greenhouse, etc. Well, about five miles from our place (in fact, it is down to Abbeyville where I used to have a Sunday-school) there is a piece of sandy soil that grows all kinds of stuff earlier than we get it here; yes, it was one of my old Sunday-school boys who drove up with a nice load of ripe potatoes, and a smiling face, to think he had got a little ahead of me. He wanted $1.10 a bushel for them. I told him I did not believe I could afford to give over $1.00; but I finally decided to make the price $1.05. Then I instructed one of our boys to help him unload them. Pretty soon I saw them measuring them. I remarked, "Why, friend U., you measured the potatoes before you started, did you not?"

"Why, yes, I measured them, but I supposed, of course, you would want to measure them after me, to see how our measurements agreed."

"Why, I guess your measure is all right, and you are probably in a hurry to get home, are you not? Well, we will take your measure for it; and while you are unloading them, to save you time I will bring you your money."

So he rolled up the money and put it in his vest-pocket, before the last of the potatoes were off, and then he jumped back into his light wagon, and was back to his work again several minutes sooner than if he had waited until they were all unloaded, measure carefully compared, and then a clerk sent upstairs to wait until the book-keeper counted out the proper amount. Now, friends, it does me ever so much good to see the look of pleased surprise on the face of these friends when they discover that I am looking ahead, and planning to save *their* time instead of my own. Why, I just love to see an opportunity present itself that permits me to show these friends that I am interested in their welfare as well as in my own. Contrast this method, if you please, with the one of telling the man who raised the potatoes that your money is a little short just then, but that you will try to have it ready for him when he comes to town next time. Now, I have repeatedly heard of instances where farmers have come several miles to town to get the money that had been promised them for a load of produce. Sometimes they come for no other purpose, and do not get it even then.

A few days ago an elderly man and woman came into the store and inquired anxiously for Neighbor H. One of the clerks told them that Neighbor H. was off in the country, and would not be back until late at night. I noticed a disappointed expression in their faces, especially on the face of the woman; and, in fact, they made some remarks to the effect that they were greatly disappointed. The clerk, however, did not seem to think that it was any of his business, and turned away from them. But I took the liberty of asking if I might inquire *why* they wished to see Neighbor H. The old lady seemed quite pleased to have me show an anxiety to help her, and told me that he had bought some bees of them, but did not have the money with him to pay for them. They happened to be needing money, however, and had made a journey of several miles in order to get it a little sooner. They were, however, just ready to drive back home without it. Inquiry revealed the fact that Neighbor H. had left no record of the transaction, and nobody knew how much money they were to have, unless we took their statement for it. I told her that, without any authority from Neighbor H., I would pay her the money provided she would make it right if it were not exactly as H. understood it when he got home. A clerk just then informed me that she knew these two worthy old people, and that she would be responsible for the truthfulness of whatever statement they made. How happy and pleasant was the expression on their faces, contrasted with the one when they were told that Neighbor H would not be back until night! The memory of having sent people away pleased not only lasts me all day, but two or three days; in fact, I have kept happy almost all the while lately by just watching for chances like these I have mentioned.

A great many times we trouble people seriously by heedlessness; and I think we might as well define heedlessness as a species of selfishness. Any thing that leads us to be forgetful of the needs and comforts of those about us is selfishness. To illustrate: Some time ago when we were buying bees to fill orders by the pound, a neighbor offered us three or four extra-strong colonies. The boys told me, after they had unloaded them, that there were the most bees in one of those hives that they ever saw in any hive. The neighbor who brought them stood around some time, looking at the apiary, and talking on various subjects. Although he was a farmer, I supposed he had not very much to do that morning, and was therefore looking about to see what we had that was curious and interesting. He finally went home, and came again about a week after, and stood around in the same way. Finally I saw there was something on his mind, and at length he spoke something like this:

"Mr. Root, if it is not going to put you to too much inconvenience, I should like the money for those bees. I need it to use."

I turned around in astonishment.

"Why, friend W., what bees do you mean? I do not understand you."

"Why, those bees I brought you about a week ago, that your boys thought such a bargain."

And then it transpired that nobody had offered to pay him for them, and he went off home because he disliked to urge payment when he thought that, perhaps, we were not prepared to pay right off. I got the money for him at once, and then went to the boys who unloaded the bees. Each one supposed that the other had looked after the money part of it, and so it was dropped. You may say that the man ought to have had pluck enough to talk right out; but, dear friends, there are a great many people who do not like to urge matters in this way, and they are very often the best people in the world too. Have *you* never troubled and inconvenienced those with whom you have deal, in this way? There are some products of labor that it seems particularly hard to lose. A young friend of mine who was recently married, and who is working hard to make both ends meet, brought some butter to town, and sold it to a Christian woman—at least, she is a member of one of our churches. She was not ready to pay right off, and so they called again and again. The money was never ready, and finally the woman who had the crock of butter plainly evaded and avoided paying them. They had made so many trips for it that they got disgusted, and declared that they would not bother any more about it. A few days ago this woman moved away from town, and the crock of butter is not settled for yet, and probably never will be. What a record for a Christian! Think of the disgrace and dishonor that it brings on the name of Christ Jesus! O my friends, as you value your peace of mind—as you value your hope of heaven, do not go through life dragging such loads as this poor woman must drag. I told you of the new source of happiness I had found within the past few days in giving people their hard-earned money, even a little *before* they expected it. Well, now, if you want to try the contrary way, just do as that woman did about the butter, and see if it does not bring more gloom, doubt, and despondency to your mind than any thing else. If you *want* to be *unhappy*, just set about shirking your just debts. If, however, you want some real genuine enjoyment—if you want to taste of the peace that Jesus alone can give, start out this very minute, *fixing* up if not *settling* up these debts you owe your neighbors. Money is a grand good thing to start out with; but it is better to start out without it than not to start out at all. Go and speak to these friends who have accommodated you; tell them you have not forgotten their kind indulgence, and tell them, too, that you will pay interest for the trouble you have made, and then see that you do it.

Perhaps you say, "Oh! yes, Mr. Root, this is all very well and very nice when one has plenty of money to do good with, as you have. Who would not enjoy it?"

And now, dear friends, this brings us to the most interesting and to me the grandest part of this whole matter. The best way in the world to have money—yes, and to have it in plenty—is to follow strictly the Bible text at the head of our talk. To do this you must not buy heedlessly nor unwisely. Let both your purchases and your promises be few—that is, until you have the wherewith to work on a larger scale. You know the promise I have so often repeated to those who are faithful in few things.

Suppose one should start out in business, *not* to make *money*, but to make people *happy*. Now, like other matters that I have talked to you about in these pages, you must use good sound judgment and common sense—sanctified common sense is a word I like. While paying our debts promptly, and paying our just dues promptly, in the way I have indicated above, makes people happy, it does *not* make them happy to give them money they have not earned; nor does it make people happy to give them a bigger price for things than you can afford. I might have pleased my young friend who raised the potatoes, by giving him more money for the potatoes than I could sell them for; but it would not have been a rational proceeding. What I mean by doing business for the purpose of making people happy, is that you shall do business in a business-like way, and yet have your sole end and aim in life to give happiness; to honor and glorify Christ Jesus, rather than to make money. The best illustrations I can pick for any point I wish to enforce is personal experience. Yet I know some people who do not understand me very well may think I am boasting when I speak of my own personal experience. Well, you know I am much given to hobbies; and since the time of my conversion, one of my hobbies has been, as I have often told you, to help my neighbors by giving them work, and paying them promptly every Saturday night. I think I am not mistaken when I say that my love of business, after I started out to follow the Savior, was not because of the money that was to be made, but rather because of the happiness it brought in doing good in the way I have told you to-day. I started out paying cash down for every thing, because I felt that it honored Christ Jesus by so doing; for, you know, I have pretty vehemently advocated Christ Jesus. If my daily transactions in business are not such as commend themselves to my fellow-men, I should not be honoring my profession. I try, in my humble way, to honor the Savior, and he has seen fit to honor me. Even at this comparatively dull season of the year it is my pleasure and privilege to pay my helpers alone over one hundred dollars a day, and perhaps another hundred is sent in different ways to different neighbors scattered far and wide, each working-day in the year. One thing that worries and troubles me, however, in this matter is, that I rarely find people for helpers who love to pay money when it is due, as I do. The book-keepers, and clerks who bring merchandise from the trains, seem slow to get hold of my wishes in this respect. Barrels and boxes of wax come to us from friends far away; and while I should like to have them have their pay by the very first mail after the wax is unloaded, there seem to be a good many hitches in having it done. Sometimes I have to write *apologies*, because, by somebody's neglect, the money has not been handed over, even when it lay idle in the bank, doing nobody any good. Do you want a little further explanation in regard to this money that lies idle in the bank a great part of the year, dear friends? Well, I am glad to give it. While I honor the Savior in the way I have indicated, he honors me by saying, "Here, child, take money and use it. Take all you want; only be sure that the inmost purpose in your heart is to honor me, and it shall come." I mean by this, that, so long as I am trying to bring people to Christ by the use of money, the money comes of itself. I do not have to worry about that. I do not mean that it is always ahead, by any means, for the greater part of every year we are paying interest on *borrowed* money. The money is, however, usually loaned to us by people who are glad to have us take it; and when it comes time to pay them the interest, I enjoy paying *interest* just the same as I enjoyed paying the man for potatoes. So you see that, even in *borrowing money* I have happiness and enjoyment. A good many times there are people in my employ who have, by hard work and careful saving, got a little ahead. When we need capital we take this and pay them interest.

Now, there is a double reason why I love to pay these friends the interest money. I know that they have learned to economize and get something ahead for a rainy day, and I feel that their *interest* money is just as fairly earned, and just as much their due, as the *wages* I pay them every Saturday night. By the way, dear friends, when you are owing people money, and you ask them to wait on you a little while, or when they good-naturedly tell you they would just as soon you would keep it a little while, do you always pay them interest? If you do not, you have missed *another* source of real happiness and enjoyment. If you want to be a *happy* Christian, pay a *just* and *fair* equivalent for all you receive at the hands of your fellow-man. Why, there is a great unexplored region in this direction—not only a chance of getting happiness, but a chance of getting property and the comforts of life, that a great part of the world know nothing about. Do you think this a strange doctrine? Why, my dear friends, how many Bible passages are there to back me up in the position I have taken in these pages? Why, it is only living out the golden rule, of doing unto others as we would that they should do unto us. It is only living out the command to love thy neighbor as thyself. The Bible is thronged with promises to those who catch the spirit. "With what measure ye mete, it shall be measured to you again." "Do good, and lend, hoping for nothing again." And in the chapter from which I have taken my opening text to-day, read some of the promises: "For length of days, and life and peace, shall they add to thee." "So shalt thou find favor and good understanding in the sight of God and in the sight of man." "So shalt thy barns be filled with plenty." "Her ways are ways of pleasantness, and all her paths are peace." "When thou liest down thou shalt not be afraid; for the Lord shall be thy confidence, and shall keep thy foot from being taken." "Withhold not good from those to whom it is due, when it is in the power of thy hand to do it." And right after this last promise, comes the text from which I caught the inspiration for my talk to-day:

> Say not unto thy neighbor, Go, and come again, and to-morrow I will give; when thou hast it by thee.

SPRAYING FRUIT-TREES TO DESTROY INSECT-ENEMIES.

THE USE OF ARSENICAL POISONS FOR SPRAYING FRUIT AND OTHER TREES.

MR. ROOT:—Will you please inform us how the fruit is on your trees that were sprayed, in comparison with those not sprayed? Does it save plums all right? How expensive would it be to spray 100 good-sized apple-trees? What is the expense of machines? Do you keep them for sale? E. Z. GREEN.

Montague, Mich., July 9, 1888.

Friend G., the fruit on the sprayed trees seems to be perfect—almost without spot or blemish, but a good many apples have fallen off notwithstanding. The fallen apples seem to be sound, and I find no worms in them, therefore I do not see why they should drop off. We did not have plums enough to test it for the curculio. The tree that had most on, the boys forgot to spray, and of course the plums were stung. The solution as we had it was certainly too strong; namely, half a pound of London purple to 50 gallons of water. The foliage of the trees was in some places injured. One of our neighbors suggests that he thinks it caused the fruit to drop off on account of its being too strong. We do not keep the machines for sale. They can be purchased of the Nixon Nozzle Co., Dayton, O. We have had such an abundance of rain that the machine has not been tested as much as we expected to test it. Potato-bugs and cabbage-worms have, in fact, been almost a failure (?); that is, we have not found it necessary to do any thing with them of any account. Usually, during the fall months our basswoods by the roadsides are infested by different kinds of worms that sometimes almost denude them of foliage. I have been watching anxiously to see them commence operations this year, that I might test the spraying-machine on them; but they have not come yet. The basswoods are still clothed with beautiful clean perfect foliage. In fact, there is no tree on our grounds that has yet been troubled with leaf-eating insects of any sort. Very likely this is owing to the abundance of rain, as I have remarked before. I will report further as I have opportunity to use it.

BEE BOTANY,

OR, HONEY-PLANTS TO BE NAMED.

PROF. COOK:—I find the two inclosed plants to be constantly frequented by the bees for pollen, and perhaps for honey. They are everywhere abundant on the top of old Lookout Mountain, where I am located. I find no description of them in your book. Please give the botanical names in GLEANINGS. The one with the ball-shaped flower seems to be a sensitive-plant, and is a running vine; the other is a bushy plant growing about 18 inches tall. C. F. PARKER.

Valley Head, Ala., July 1, 1888.

Prof. Cook says of this plant:

The shrub which grows from one to two feet high is *Ceanothus Americanus*, or New-Jersey tea or red-root. It belongs to the Buckthorn family, and grows abundantly in Michigan. We have never regarded it as important in this vicinity. It may be that other honey-plants take precedence.

The other plant—and a delicate, beautiful thing it is—is found only south. It is *Sensitive-brier*, or *Schrankia angustata*. As one would suppose from its appearance and sensitive habit, it is a near relative of the real sensitive-plant, *Mimosa pudica*, and also of the honey-locust. Like many of the Pulse family, it secretes nectar, it seems. There is another species of the same genus, *S. uncinata*, though it is not always easy to separate them. This last one is evidently named from the hooked spines which thickly beset the peduncles, petioles, and pods.

Agricultural College, Mich. A. J. COOK.

HUMBUGS AND SWINDLES

PERTAINING TO BEE CULTURE.

I SOLD to George W. Boward, of Springfield, O., 338 lbs. of honey at 10 cts. per lb., to be paid for the first of November, 1887, for which he has neither paid me nor acknowledged the receipt of it. Please give him a place in Humbugs and Swindles. R. ROBINSON.

Laclede, Fayette Co., Ill., Jan. 13, 1888.

As soon as the above letter reached us, we wrote immediately to Geo. W. Boward, and have since then written repeatedly, but can get no reply from him whatever. We did not very much expect a reply, however, as the commercial reports give him a bad name to start with. Bee-keepers should be very careful about sending honey to parties who are unknown or unfavorably quoted. Inquiries at your nearest bank will tell us whether a man is honest or not. It does not make any difference what promises such men make, for a promise amounts to nothing from anybody without a character to back it. We are very sorry indeed to tell you, friend R., that your 338 pounds of honey are, in all probability, an entire loss.

REPORTS ENCOURAGING.

2500 LBS. OF HONEY FROM 30 COLONIES.

MY bees are fixed for their summer rest. I send in my report. Spring count, 28 good and 2 weak. I have taken 1800 lbs. of extracted, and 700 lbs. of comb honey. I could take enough more to make up the average to 100 lbs. per hive. I think it would be hard to find better honey than the most of this.

Sarasota, Fla., July 2, 1888. W. J. DRUMRIGHT.

Our bees never did better on white clover than this year. E. R. A. & B. BRAINARD.

Postville, Iowa, July 5, 1888.

My bees are doing nobly. We have about forty colonies of them. T. H. WHEELER.

West Bedford, O., June 20, 1888.

Bees are swarming at a great rate, and booming on white clover. H. H. BROWN.

Light Street, Pa., June 16, 1888.

BEES BOOMING.

Out of foundation. Mercury 92 to-day. Bees have been booming since the 26th of April. I have never had an idle day. J. H. VANOSDOL.

Dawson, Pa., June 18, 1888.

Bees doing well now. White clover is very light, but coming on since the rain. Altogether, the outlook is favorable now. H. R. BROWN.

East Townsend, O., June 16, 1888.

BUCKWHEAT CAKES AND HONEY AGAIN ON THE BILL OF FARE.

Thanks for promptness. The honey from mint promises fair. The extractors will start flinging out the delicious nectar this week, and buckwheat cakes and honey will again come in the "bill of fare." B. F. CARROLL.

Blooming Grove, Tex., June 4, 1888.

CHANCES FAVORABLE.

The bees are hauling in the nectar from poplar and white clover, which are both in full bloom, and the chances for a good crop of honey are quite favorable, with well-managed apiaries.

La Paz, Ind., June 15, 1888. C. A. BUNCH.

EIGHT BARRELS OF HONEY UP TO DATE.

I have shipped, up to date, 8 barrels of honey, for which I received 5½ cts. per lb. I have increased my apiary from 100 to 150 colonies, and I expect to get 12 or 15 barrels more. W. G. MCLENDON.

Landing, Ark., June 23, 1888.

GOOD INCREASE.

I was stocked with ten swarms last spring, on shares, by a bee-sharp from California; have now 48 good strong colonies. How is that for an A B C? When this reaches you there will be at least 50. I started out for 100 from 10, and now it is nearly 4 from 1, and it will be very easy to double what I have. I make all my hives of rough pine lumber, 10 to 14 frames, no paint nor putty. Bees make honey sweet without either. P. PLUMMER.

Tuscon, Ariz. Ter., June 7, 1888.

REPORTS DISCOURAGING.

DISCOURAGING, BUT THE REPORTER NOT DISCOURAGED.

EDITOR GLEANINGS:—If you want reports that are discouraging, I can furnish one. I commenced the season with 15 strong colonies. I never saw bees in better condition, but I have not been able to get any surplus honey. The white clover was all killed by last summer's drouth, or by the winter, I know not which. There is a fine crop of young clover, but it is blooming very sparingly as yet, and bees don't seem to notice it. Will young clover produce any honey the first season? Basswood bloomed profusely, and lasted 7 days; but my best colonies gained only 1 lb. per day. This is certainly discouraging, but I will try again, if the Lord will. J. P. ADAM.

Paris, Ill., July 7, 1888.

BEES IN A STARVING CONDITION.

This is a very peculiar season here. White clover furnishes no honey, and the bees are in a starving condition. The hives are full of bees; in fact, they are very strong. About a week ago they went to work and killed all the drones. Bees wintered well in this section, many not losing even a colony.

Scranton, Iowa, July 8, 1888. E. F. BELL.

REPORT DISCOURAGING FROM E. FRANCE.

White clover is very scarce. Bees are making but little more than is used up in brood-rearing, and what honey has been gathered so far is too thin to extract. June 21st we extracted 24 lbs., just to sample the honey. It is too thin—too much rain. We have 431 colonies of bees, and so far no honey. In 1886, at this date we had taken 30,000 pounds. We have had two days now without rain. If this dry spell continues, we may get a little yet. The prospect is fair for some basswood honey.

Plattville, Wis., June 25, 1888. E. FRANCE.

THE PROSPECTS.

As nearly as I can learn up to date, the yield of honey isn't over 25 per cent of what it is a good year. I haven't taken any honey from my bees yet, but have some comb honey nearly finished. Bees are working somewhat better now. Basswood is not in bloom. I could get 20 cents for good new comb honey now. No extracted offered. I call this a poor year for Jackson Co. It will take all summer to get some of my swarms ready for winter. The prospect is good for a good honey year in 1889, as the ground is covered with young white clover that will not blossom this year. The best honey-plants I have seen are what I call motherwort, and catnip. W. D. Soper.

Jackson, Mich., July 6, 1888.

WHITE CLOVER A FAILURE.

The white clover here is almost an entire failure, having frozen out last winter. Only a very few blossoms are to be seen; however, there is an abundance of young clover that has come up from the seed this spring, so I hope there will be plenty next year. I am afraid it will be all the bees can do to get stores to winter on. It is now June 13th, and not an average of a pound per colony made yet.

Thornton, Ind., June 13, 1888. J. A. Utter.

HONEY CROP IN CALIFORNIA SHORT.

Our honey crop will be short—not more than half the usual amount—owing to the cold cloudy weather of April and May, our best honey months. I saw by Gleanings some time ago that you were intending to visit this section of the State the coming summer. Could you not combine business with pleasure, and arrive here at the time the most of the honey is in the producer's hands, and help us to a market, either by purchase or otherwise? Our honey will be sold in San Diego, to dealers who make the profit, if any is made. I asked a dealer in San Diego the other day what honey was worth, both extracted and comb, 2-lb. sections. He replied that the best they could do was 4 cts. for best extracted, and 8 or 9 for comb. This would seem low when we consider that, owing to the total failure of last year, and partial failure the present year, the markets must be almost bare. There is out at the present time in this settlement, the following amounts, which will not be doubled, hardly, by the total amounts to come off during the rest of the season. I will first say, that there are about 600 stands in the settlement. Amount out now, comb, 2½ tons; amount out now, extracted, 5 tons. As I said before, this amount will, I think, be nearly doubled for the whole season, so that the total will read 5 tons comb and 10 tons extracted. All the honey made so far is extra white.

De Luz, Cal., June 27, 1888. O. A. Stewart.

Friend S., I should be very glad to combine business and pleasure, if I had brains enough to spare for both; but as it is, when I go to California I want to go just for the fun of it, and for the sake of gleaning something valuable for the pages of Gleanings. If you have any honey to sell, you had better write to us direct.

HONEY WANTED.

Mr. Calvert, our purchasing clerk, says we want some comb honey now, and we want it bad. We do not want a carload, but we should like 500 or 1000 lbs. We should also like a ton or two of nice extracted clover honey. Tell us how much you have got, and what you will take for it; and if we do not buy it, we will give it a free notice in our Honey Column. I believe it is a difficult matter to ship honey from California, unless it is done in carload lots.

NOTES AND QUERIES.

WINTER AND SPRING REPORT.

I WINTERED 35 swarms in chaff hives; fifteen were four-frame nuclei. I lost one full swarm by dysentery, and seven nuclei; one by dysentery and two by starvation.

THOSE BUTTER-DISHES FOR HILL'S DEVICE.

I had to feed some last fall, and used the butter-dish feeders. After feeding I turned one bottom side up, across the frames of each hive, under the chaff cushion, and I like them used in this way.

Quincy, Mich. C. A. Ricketson.

OPEN-TOP SECTIONS VERSUS CLOSED TOPS.

I think I shall like the open section better than the closed tops. A. L. Clair.

Redden, Del., June 20, 1888.

A SUPPORT FOR SECTIONS.

I find supports for sections in crates ⊔ shaped much better than ⊥ rests, as there is less chance for the bees to fasten the sections to them, and they are fully as strong, and easier to put in. To do which I make two saw-cuts in the bottom edge of the crate for the uprights, and drive a nail in the flat part to hold it in place. The uprights are $\frac{3}{16}$, and the bottom ¼ inch. A. C. Miller.

Drownville, Bristol Co., R. I., June 16, 1888.

NO DRONES.

I have three hives, and do not see any drones. What is the cause of it? W. W. Beam.

Malheur City, Oregon, June 29, 1888.

[A young queen will rarely ever lay many drone eggs, and consequently you would find very few if any drones in the hives with your untested queens. The absence of drones may likewise be accounted for by the sudden cutting-off of the honey-flow, or from the fact that no honey is or has been coming in.]

BLACK SHINY BEES.

Bees are booming. Gleanings gets better all the time. Please give me some information as to the black shiny bees we sometimes see.

Milton, W. Va., June 21, 1888. M. A. Kelley.

[The black shiny bees you mention may be nothing but very old bees, the fuzz having been worn off their abdomen. There is another kind of black shiny bees, and they are those that have what we call the nameless bee disease. Their abdomens are considerably swollen, and their general appearance is dark and somewhat glossy. See the A B C for further particulars.]

SOWING BUCKWHEAT WITH CLOVER, ETC.

Will clover do well, sown with buckwheat in April? If a hive is filled with worker foundation, will the bees raise any drones in such a hive?

Pleasant Site, Ala. T. B. Strickland.

[I think very likely the clover would do all right, friend S., but it is not customary to sow buckwheat in April. It seldom fills out well during hot weather.—Bees will usually raise some drones in almost every hive, even if they have to tear down worker-cells in order to make a few drone cells. Worker foundation, however, prevents the excessive raising of drones, and is, to all intents and purposes, a complete remedy.]

TRIMMING FOUNDATION WITH A SADDLER'S KNIFE.

I ran on to an improvement to cut starter wax. I don't know whether it has been used before or not. It is a saddler's knife. You can lay down your strips of wax and roll your knife through. It beats any thing else I have ever tried. C. F. UHL.

Millersburg, Ohio.

[Friend U., a saddler's knife has been suggested before; but it costs a good deal more than a round-pointed butcher-knife, and I believe a good many think it not very much better.]

LABELING HONEY.

What is the law about labels on box honey—to label the case or each section, when selling by the case or section? ALFRED CATLIN.

Charlestown, O., June 18, 1888.

[Friend C., there is no law in regard to labeling box honey or any other kind, unless it be the law against adulteration. You have no right to put a fraudulent label upon any article. Some bee-keepers put a label on each section by means of a rubber stamp; but I believe that the general custom is to put the name of the producer on the crate only.]

Friend Ernest:—In your remarks about bee-veils and hats, you say, "Put a few large leaves of plantain in the crown of your hat." Will you please try a piece of orange-colored cloth in the crown of your hat, on some sultry day, and report in GLEANINGS?

River Falls, Wis., June 20, 1888. A. D. SHEPARD.

[Thanks for your suggestion; but why *orange*-colored cloth? Wouldn't any other light-colored cloth be as cool? I mentioned plantain leaves because they are handy and contain some moisture. The consequent evaporation makes things cooler, besides the protection the broad leaves afford. Grapevine leaves or large leaves of any kind will do equally well.]

DOES THE CHESTNUT FURNISH HONEY OR POLLEN, OR BOTH?

Does the chestnut furnish only pollen, or does it also furnish considerable nectar for the bees? Our farmers here assert that the very dark honey we get from the 1st to the 10th of July is obtained from the chestnut, and is not bug-juice at all. Who will settle this important question by careful observation, and report? The chestnut blooms from the 1st to the 10th of July. DR. G. L. TINKER.

New Philadelphia, O.

[Friend T., I believe it is pretty well settled that chestnut does, at least some seasons, furnish considerable quantity of dark honey. I do not know, however, just what the flavor is like. Perhaps some one can tell us.]

HOW BEES GET POLLEN ON THEIR LEGS, AS WITNESSED UNDER FAVORABLE CIRCUMSTANCES.

I transferred my bees, and after a few days I saw them on the old hives, pulling and tearing wax and propolis off and fastening it on their legs as pollen. The wax came off in small pieces, and the little fellows were obliged to do their work more slowly. With the front legs they took it from their mandible and delivered it to their next legs; from thence they kicked it (if I may use the expression) into the pollen-baskets. JONAS E. HERSHBERGER.

Grantsville, Md., June 11, 1888.

CULTIVATING PLANTS FOR HONEY.

Do you know from experience that it pays to cultivate the Chapman honey-plant for bee-pasture? or Japanese buckwheat? If you have had experience, give us an editorial on it, whether favorable or not. Is alsike clover better adapted for bees to gather honey from than ordinary clover? and does it make as good hay? How does it compare in growth?

Loysburg, Pa. J. S. BIDDLE.

[Friend B., we do not know from experience nor from report that it will pay to undertake to raise any plant for honey alone. Japanese buckwheat pays splendidly for the grain it yields, especially at the present high prices. Alsike clover also pays for hay and seed. It makes the best hay for milch cows, known. See the A B C book for further particulars.]

OUR OWN APIARY.

CONDUCTED BY ERNEST R. ROOT.

CONDITION OF THE APIARY.

On the average, the brood-nests of our colonies are about two-thirds full. Some colonies have their frames well capped over, and, again, others have perhaps not over five or six pounds in the hives. In only two instances have the bees gone above to store sections of honey, and in these only a few sections are capped over.

OUR EXPERIENCE SO FAR WITH THE HARMER FIVE-CENT SMALL VENEER SECTIONS.

When the honey began to come in, we prepared some frames containing some small veneer sections, described on page 242, April 1, 1888. By way of a double experiment, I thought we would try in these some flat-bottom foundation. Some frames were put down in the brood-nest between the side of the hive, and a frame containing nothing but honey. To put them next to a frame containing brood would only have resulted, probably, in some discoloration, besides the storage of some pollen in the cells. Other frames were placed in the upper story, between brood-frames containing but little honey and no brood. Up to date, the bees have not done very satisfactory work on them. This is partly due, perhaps, to the backwardness of the season, and partly to the flat-bottom foundation. The latter the bees did not evidently regard with favor. In some cases they tore it down and rebuilt combs: in other instances they remodeled it considerably before they began to draw out the cells. I believe, however, if there had been a rush of honey they would have taken hold without hesitation. But as the nectar came in very slowly indeed, they had ample time to tinker and fuss with something that was not exactly according to their pleasure.

I am well aware that this experience does not agree with that extensive and practical bee-keeper, P. H. Elwood, of Starkville, N. Y., as told on page 160, March 1. I shall therefore be the more ready to be corrected if wrong. I think it is quite likely that his locality furnishes enough nectar to cause the bees to go into the super with a rush, and consequently they are ready to accept any thing that will make comb.

Aside from the flat-bottom foundation, the bees seem a little averse to working in such small sections. They very much prefer to work out full sheets of foundation in L. frames, rather than to fuss with little dribs. But this may likewise be attributable to the meager flow of nectar. If I remember correctly, friend Harmer thinks the bees take hold of the foundation in these small sections just as readily as a full sheet of foundation. Perhaps further developments this season will reverse and change materially the present aspect of things.

GLEANINGS IN BEE CULTURE.

Published Semi-Monthly.

A. I. ROOT,
EDITOR AND PUBLISHER,
MEDINA, OHIO.

TERMS: $1.00 PER YEAR, POSTPAID.

For Clubbing Rates, See First Page of Reading Matter.

MEDINA, JULY 15, 1888.

Happy is the man that findeth wisdom, and the man that getteth understanding.—PROV. 3: 13.

HONOR TO WHOM HONOR IS DUE.

As considerable has been said of late in regard to those to whom we are indebted for advances in bee culture, I should like to make mention of the name of Alex Fiddes, of Centralia, Marion Co., Ill. Mr. Fiddes, as our older readers all know, made the first one-piece section box. Not only that, he at once communicated his experiments to the bee-journals, and thereby effectually cut off anybody at any future time from trying to monopolize this truly valuable invention. Determined efforts and a good deal of money were expended in trying to break down or evade friend Fiddes' simple, honest statement, but it could not be done. As friend Langstroth is the father of practical movable combs for bee-hives, so friend Fiddes is the father of one-piece section boxes; and when we reflect that millions upon millions of these honey-boxes are now used yearly, I think we owe a vote of thanks to friend F. Others may have made section boxes before he did, and, in fact, we well know that different men in different parts of the nation were experimenting at the same time on this idea; but Fiddes made them, and secured a honey crop, and promptly reported it, and had it put in print; and we certainly owe him a vote of thanks for this latter operation.

VISITING BEE-KEEPERS.

As our dull season approaches, it is our purpose to have some one representing GLEANINGS make calls on the prominent bee-raisers and honey-producers of the United States. These visits will probably be made by A. I. Root himself, Ernest, or Mr. Calvert. I suppose that I might explain that Mr. Calvert is the husband of Ernest's sister Maud. That makes us all one family, you know. Well, the first visit of the series has already been made. Mr. Calvert has made a very pleasant and I trust profitable call on Dr. C. C. Miller, and our good friends the Dadants. It was my wish that he make his report for this issue; but as he wishes to have it illustrated by cuts it will have to stand over a little time. We hope this new arrangement will not only prove profitable to the readers of GLEANINGS, but better prepare the editorial staff of our journal for their duties and responsibilities. As they become better acquainted with the bee-keeping world at large, the more ably will they be prepared to expound orthodox bee culture. A part of the programme is to send A. I. among the bee-men of California, toward the latter part of the year. He is already getting a little stubborn in the matter, however, and begins to intimate that he does not want to go. If we succeed in getting him started, however, we think he will probably do very well.

OUR NEW $8.00 TYPE-WRITER.

FIFTEEN of these machines have been unpacked in our office, and now every clerk who formerly used a pen is rejoicing in a type-writer of his own or her own. No more bad writing—no more indistinct figures and letters; no more troubles, at least on our part, in any of these different ways. Of course, we don't write very fast yet, and a great deal of the writing bears evidence of having been amended. But we are on the high road to improvement. An amusing story just came to my ear, illustrating the need of type-writers: A man who, I believe, was in the employ of Barnum, at one time had occasion to order a couple of monkeys, to fill a vacancy in the menagerie. In making his order, instead of spelling it *t-w-o*, indicating that two monkeys were wanted, he got it *t-o-o*, and then omitted to cross the *t*, so the order went to Africa or South America, or somewhere else, for 100 monkeys. Knowing that P. T. Barnum was good for what he ordered, the natives put out into the jungles, and chased monkeys for all they were worth. They could not *quite* make out the number; but imagine the consternation of our friend who spells badly and writes worse, to get a reply something like the following: "We have succeeded in capturing, so far, only 77 of the 100 monkeys, and will ship the rest of them as soon as we catch 'em." Now, you see this little type-writer would have saved a tremendous expense, and may be some hard words and hard feelings—*especially on the part of the monkeys*, our "stenog" adds.

THE ANNUAL REPORT OF THE BEE-KEEPERS' UNION.

THE Third Annual Report of the General Manager of the Bee-keepers' Union has just come to hand. In it we learn that "the Union has been successful in every case it has undertaken in defense of the pursuit of keeping bees." Although the object of this Union is to protect the interests of bee-keepers, it does not necessarily advise going to law. In several instances the manager has advised conciliatory measures, and thus an expensive lawsuit has been averted. In two cases where the bees were *really an injury* to neighbors, the bees have been removed by the advice of the manager. "In other cases, compromises have been advised, and the wisdom of such has been seen in the amicable relations now existing, where trouble had been brewing." It is wise to avoid lawsuits as far as possible, and we take pleasure in noting the fact that the Union has done so. Among the cases taken to law was one in which H. W. Rich, of Hobart, N. Y., was sued for $1200 damages. Although the judge was evidently against the defendant, only 6 cents damages was awarded the plaintiff by the jury. The Arkadelphia nuisance case will come to trial about July 16. The defendant, Mr. Clark, on account of the alleged nuisance of his bees, and his refusal to remove them from the city limits, and also his refusal to pay a daily fine for so doing, has been remanded to the city jail. The Union has agreed to pay the Hon. S. W. Williams $250 for defending the case in the Circuit Court. At present there are only about 300 members in the Bee-keepers' Union. In order to work to advantage there ought to be a much larger number. The Advisory Board of the Union has decided that it can not defend the interests of any bee-keepers who were not members of the Union *before* they got into trouble. If, therefore, you are not a member you can not expect assistance should you ever require it. The financial statement submitted by the manager is as follows:

From July 1, 1887, to June 30, 1888.

Balance as per last report		$224.25
From 97 members at $1.00		97.00
From 194 members at $1.25 each		242.50
		$563.75
Paid S. W. Rich's suit	$100.00	
Paid Z. A. Clark's suit	125.00	
Printing, stamps, stationery, etc.	80.48	
		$305.48
Balance on hand July 1, 1888		$258.27

It is now time for the election of new officers, and voting-blanks have been sent out; and we sincerely hope that our co-worker, Mr. Newman, will be retained as manager, as we have no doubt he will.

TESTING THE PURITY OF HONEY BY CHEMICAL ANALYSIS.

OUR good friend of the *Bee-Keepers' Magazine*, in his July issue, takes us to task pretty vehemently; and I am very glad he has done so, especially as he has put it in such a friendly, good-natured way. May be we are at fault; but before occupying more space with the matter, I should like to have our State chemists get some hives of bees, and make a careful analysis of the honey these bees gather. The Agricultural College of Michigan has an apiary already; so have some other colleges. Now, if it has not already been done, let them test the honey right from their hives, before they broadly declare the honey found on our markets is adulterated. It has been several times stated that it is an extremely difficult matter to detect adulteration in honey, or, in other words, that expert chemists have pronounced samples of real honey, taken from hives in rural districts, adulterated, when nothing of the kind had been done, and when no feed of any kind had been given.

"PATENT RIGHTS" AND "INDIVIDUAL RIGHTS."

THE *Bee-Keepers' Review* of July 10, after speaking some very kind words for A. I. Root, says:

> There is no misunderstanding him upon this point, as he says right out and out that he considers the sale of "rights" as "improper," etc.

Now, dear friends, do not make me out worse than I am. In speaking as strongly as I did against the sale of individual rights on bee-hives, I think I have been very careful to say *individual* rights every time. I am sure I have never said any thing to convey the idea that I thought it wrong for an inventor to sell his invention to a manufacturer, the latter, of course, expecting to manufacture the article for sale. And there is a vast difference between a transaction of this kind and the one of peddling individual rights on bee-hives, fences, or lightning-rods, among the farmers or others, of the rural population. I did not reply to Mr. Langstroth, because he requested me to make no comment—at least for the time being. And I said nothing, even when he went back and quoted something that appeared in GLEANINGS years ago, in a way that might lead one to suppose that it was something of recent date. I appeal to the readers of GLEANINGS if my advice is not safe and sound. And now *I* am going to stop talking at present, about patent beehives. If it is a bad place to stop, why — then we shall *have to* stop in a bad place. Now, brethren, let us talk about something else, and be good friends.

TURNIPS IN JUNE.

EVER since I saw Landreths' mention of their extra-early purple-top turnip, I have had quite an ambition to raise them before anybody else had turnips. Now, although I tried it three years, and failed every time, I still stuck to it. Last fall I plowed up a piece of ground, manured it, and sowed it to rye, putting in phosphate so as to get a good stand. As it was put in rather late for another crop, the rye did not make a very good showing, so this spring we gave it a good covering of fine old manure with the manure-spreader. This had the effect of reviving the rye so it covered the ground pretty nicely by the time it was nearly knee-high. Well, we gave it another covering of fine old manure, and then plowed the rye, manure and all, under. After this, with our grain-drill I sowed guano at the rate of about 400 lbs. to the acre. By this time it was about the middle of April, and the turnips were sown in every other drill-mark made by the grain-drill. In about four days they were up; and in a very few days more the ground was green. Some of our small boys were then set to thinning them, so that they should be from four to six inches apart. After they got through the thinning, it looked as if every turnip was killed, and the patch spoiled. But in four days more the ground was covered again; and before I knew it we had such a wonderful growth of foliage that people began to stop their horses and look at it, and ask if I had gone to raising tobacco. By the middle of June we had beautiful little turnips, as big as a silver dollar. The boys did not thin them quite as much as they ought to have done, and in ten days more the turnips were pushing each other out of the ground because they had not room to get big; and at this date, July 12, they are about the size of saucers, and not only cover the ground, but, in many places, they are pushing each other out of the ground, and standing up edgewise, and we have the handsomest turnips we ever saw—enough for the whole town of Medina, and, I am afraid, more than the whole county will use, all on a little patch of ground that I thought would just about furnish us enough for extra-early turnips. You may say that such an amount of fertilizing would give a big crop of any thing, and I guess you are about right; and it is my opinion, dear friends, that it is about the way you want to go to work to get a crop of any thing, and *make it pay*.

SPECIAL NOTICES.

DR. MARTIN'S TURNIP-SEED, ETC.

WE have just received a nice supply of seed, just gathered. It is the Purple-top Strap. Price 15 cts. per ounce; 60 cts. per ½ lb.; or $1.00 per lb. At this price the ounces will be prepaid. Pounds and half-pounds, 18 cts. per lb. extra, for bag and postage. For further particulars in regard to this seed, and cultivation, see page 304, GLEANINGS for April 1. You will remember that friend Martin gives the best time for sowing the seed as the two first weeks in August. We are just now supplying our town with the handsomest and sweetest Purple-top Globe turnips I think I ever saw at any season. They were raised in a little patch right beside the extra-early turnips mentioned above. The Purple-top Globe are not so early, but they are very much sweeter.

TAKING CARE OF YOUR TIMEPIECES.

IN the country, where it is inconvenient to carry clocks to the jeweler's, a great many people of a mechanical turn of mind are in the habit of repairing their own clocks; and as most bee-keepers *are* of a mechanical turn of mind, they usually have ingenuity enough to keep any common clock in repair. If, however, the mainspring of a clock breaks, it usually has to go to the jeweler's, unless you go to the jeweler's and buy your spring. In that case he will, as a rule, charge you not less than 25 cts.—that is, a spring for a one-day clock. Well, we have just made arrangements to get springs for one-day clocks, so that we can put them on our 10-cent counter. We have two different widths, $\frac{5}{16}$ and $\frac{3}{8}$ inch. The $\frac{5}{16}$ are intended for the striking side of most clocks, or for the running side of most timepieces that do not strike. If the springs are wanted by mail, add 3 cts. each extra for postage. Clock-springs are wanted for a great many purposes besides repairing timepieces. In fact, the cheapest way to buy a light steel spring for almost any purpose is to get clock-springs and cut them up.

THE NEW PURPLE-TOP GLOBE TURNIP.

I notice by the agricultural press that I am not the only one that has found this turnip a great acquisition. We have a fine stock of new seed that we can ship promptly as follows: Per ounce, 5c; per pound, 40c; 5 lbs., or over, $33\frac{1}{3}$c per lb. If wanted by mail, add 2c per single ounce, or at the rate of 18c per lb., for postage and packing.

KIND WORDS FROM OUR CUSTOMERS.

JUST IN TIME.

The goods I ordered came to hand all right. I had a swarm of bees come out the day that I received the goods. I used some of the wired frames. They are very nice ones. A. M. P. PEARSON.
Epping, N. H., June 14, 1888.

THE COLD-BLAST SMOKER.

I have seen and used a number of smokers, but I think one of Clark's worth the whole batch.
BENJAMIN HAZARD.
Highland Mills, N. Y., June 26, 1888.

Labels and A B C books are all in good shape. I put the zinc on my hives the next day. The book is worth twice the price to any one who wants to read about bees, and the lithograph labels are perfect gems. I am well pleased. C. P. KYZAR.
Ridgeway, Ind.

THAT HYBRID-QUEEN DEPARTMENT, AND ITS VALUE TO BEE-KEEPERS.

My queens are all gone, and I have received about 25 more orders than I can fill. That advertisement in the free column of May 15th did the business. I have all the blacks and hybrids weeded out of my apiary. E. A. LIGGETT.
Leesville, Ohio, June 19, 1888.

The bee-material I ordered of you—wheelbarrows, section stuff, etc., came duly to hand, and I was very much pleased with all, especially the barrows. The amount of the freight was at the rate of two cents a pound. This seems rather high; but at this figure I can obtain my section material of you cheaper than the 2-lb. stuff manufactured here.
De Luz, Cal., June 27, 1888. O. A. STEWART.

THAT QUEEN IN FINE SHAPE.

The queen ordered of you May 21st, and mailed May 28th, was received on the 4th inst., and was in fine shape. There was not a dead bee in the cage. The queen was received by the bees to-day, and will begin laying to-morrow, judging by the way she has increased in size since I placed the cage in the hive.
Puyallup, Wash. Ty., June 8, 1888. G. W. MORE.

A KIND WORD IN REGARD TO OUR LAWN-MOWERS.

I received the lawn-mower last Tuesday all right. It works fine. I am 75 years old, and, as the boys have as much as they can do, I have had to mow the lawn with the scythe; and any one who has ever tried to mow blue grass knows how it is. Now, it is just fun for my girls to run the Globe. They are delighted with it. W. E. FARRELL.
Lake City, Ill., June 25, 1888.

GLEANINGS AND ITS VALUE.

F. A. K., in April 15th issue, says GLEANINGS is not worth more than 50 cents. It is very seldom that I do not get information out of a number that is worth more than a dollar to me, independent of bee-lore. A few numbers back, from one of your remarks about certain ways of doing work, I learned what was worth at least $5.00 to me.
Hondo City, Tex. GEO. E. HAILES.

TO ALL WHOM IT MAY CONCERN.

CATONSVILLE, MD., APRIL 2, 1888.

Having disposed of my Queen-breeding department, together with the entire outfit and good will of the business to F. L. Curtler, Esqr., proprietor of Albion Fruit Farm, Alexandria, Va., R. R. Cuyler Apiarist and manager, it affords me much pleasure in recommending the said parties to my former patrons and the Bee-Keeping fraternity, feeling confident the reputation of "Sunny Side's" Bees and Queens will be fully maintained under so able a manager. CHAS. H. LAKE,
Formerly Sunny Side Apiary, Baltimore, Md.

QUEENS AND QUEEN-REARING.

Having purchased of Mr. C. H. Lake, formerly of the Sunny Side Apiary, of Baltimore, Md., his entire Queen-Breeding Outfit, together with the good will of his Queen business and his select strains of bees, so generally known throughout the United States and Canada, we are happy to announce to those seeking superior Queens that we will spare no pains in keeping our stock up to their well-earned reputation.

Six	$ 5 00
Twelve	10 00
Tested, each	3 00

Write for wholesale prices.
Send for circular. F. L. CURTLER,
Mention GLEANINGS. Alexandria, Va.

DADANT'S FOUNDATION FACTORY, WHOLESALE and RETAIL.
See advertisement in another column. 3tfbd

For Sale- PURE ITALIAN Queens, 60c. Tested, $1.50. Select Tested, $2.00.
14d WM. BARTH, Petersburg, Mahoning Co., O.
☞In responding to this advertisement mention GLEANINGS.

For Sale.- 8 colonies hybrid bees. Also some new chaff hives (Root pattern), very cheap. Write for prices immediately. P. J. Hartzler, Weilersville, Wayne Co., O.

BEES and queens cheap. Tested queen, $1.50. Untested, $1.00. Frame of brood, 50 cts. Bees, per lb., 90c. Send card for price list. MISS A. M. TAYLOR,
Mulberry Grove, Bond Co., Ill., Box 77.

Italian and Hybrid Bees

for sale. Full Colonies in 8 or 9 frame hives, with wire cloth on top, and bottom to confine the bees.

Hybrids, each	$5 00
Pure Italians, each	7 00
Tested Queens,	2 00
Untested Queens,	1 00

12tfd **JAS. McKERMAN,**
Philipsburg, Center Co., Pa.
☞In responding to this advertisement mention GLEANINGS

Cash for Beeswax!

Will pay 20c per lb. cash, or 23c in trade for any quantity of good, fair, average beeswax, delivered at our R. R. station. The same will be sold to those who wish to purchase, at 25c per lb., or 28c for *best selected wax*.

Unless you put your name *on the box*, and notify us by mail of amount sent, I can not hold myself responsible for mistakes. It will not pay as a general thing to send wax by *express*.
A. I. ROOT, Medina, Ohio.

ONE-PIECE SECTIONS

Side entrance, similar to those shown in GLEANINGS, page 514, $3 50 per M. B. WALKER & CO.,
14d Capac, Mich.

I CAN NOW SEND BY RETURN MAIL

CHOICE UNTESTED QUEENS FOR 75C EACH.

3 for $2.00. Warranted. 15c each additional.
9-16db W. C. GILLETT, LE ROY, N. Y.

GUARANTEED ⁂ ITALIAN ⁂ QUEENS. What do I guarantee? 1. Safe arrival; 2. Purely mated; 3, and best, SAFE INTRODUCTION if instructions are followed, and all for $1.25, until Oct. 1.
14-15d **S. A. DYKE, Pomeroy, Ohio.**

O The BUYERS' GUIDE is issued March and Sept., each year. It is an encyclopedia of useful information for all who purchase the luxuries or the necessities of life. We can clothe you and furnish you with all the necessary and unnecessary appliances to ride, walk, dance, sleep, eat, fish, hunt, work, go to church, or stay at home, and in various sizes, styles and quantities. Just figure out what is required to do all these things **COMFORTABLY**, and you can make a fair estimate of the value of the BUYERS' GUIDE, which will be sent upon receipt of 10 cents to pay postage,

MONTGOMERY WARD & CO.
111-114 Michigan Avenue, Chicago, Ill.

☞In responding to this advertisement mention GLEANINGS.

NEARLY THIRTY TONS
—OF—
DADANT'S FOUNDATION
SOLD IN 1887.

It is kept for sale by Messrs. T. G. Newman & Son, Chicago, Ill.; C. F. Muth, Cincinnati, O.; Jas. Heddon, Dowagiac, Mich.; F. L. Dougherty, Indianapolis, Ind.; B. J. Miller & Co., Nappanee, Ind.; E. S. Armstrong, Jerseyville, Ill.; E. Kretchmer, Coburg, Iowa; P. L. Viallon, Bayou Goula, La., M. J. Dickason, Hiawatha, Kansas; J. W. Porter, Charlottesville, Albemarle Co., Va.; E. R. Newcomb, Pleasant Valley, Dutchess Co., N. Y.; D. A. Fuller, Cherry Valley, Ill.; J. B. Mason & Sons, Mechanic Falls, Maine; G. L. Tinker, New Philadelphia, O., Jos. Nysewander, Des Moines, Ia.; C. H. Green, Waukesha, Wis.; G. B. Lewis & Co., Watertown, Wis.; J. Mattoon, and W. J. Stratton, Atwater, O., Oliver Foster, Mt. Vernon, Iowa; C. Hertel, Freeburg, Ill.; Geo. E. Hilton, Fremont, Mich.; J. M. Clark & Co., 1409 15th St., Denver, Colo.; Goodell & Woodworth Mfg. Co., Rock Falls, Ill.; J. A. Roberts, Edgar, Neb., E. L. Goold & Co., Brantford, Ontario, Canada; J. N. Heater, Columbus, Neb., and numerous other dealers.

Write for *free* samples, and price list of bee supplies. We *guarantee every inch* of our foundation *equal to sample in every respect*. Every one who buys it is pleased with it.

CHAS. DADANT & SON,
3btfd **Hamilton, Hancock Co., Illinois.**

☞In responding to this advertisement mention GLEANINGS.

J. P. Caldwell, of San Marcos, Tex.

Pure Italian queens.	April.	May.	Jun. to Oct.
Select tested	$2 75	$2 25	$1 75
Tested	1 75	1 50	1 25
Untested	1 00	90	75
Six untested	5 00	4 40	3 75
Twelve untested	9 50	8 00	7 00

All queens will be shipped in cages which answer the double purpose of an introducing and shipping cage. Address J. P. CALDWELL, San Marcos, Tex.
7-18db Please mention GLEANINGS.

☞In responding to this advertisement mention GLEANINGS.

FOR SALE.—Untested Italian queens, at 75 cts. each. Tested, $1.50. Two-comb nuclei, untested queen, two combs brood and honey, and 1 lb. bees, for $2.25. With tested queen, $2.75. Will sell for cash, or trade for building material of every description. B. T. BALDWIN, Marion, Ind., Box 448.

☞In responding to this advertisement mention GLEANINGS.

HERE I COME

To say that E. Baer, of Dixon, Ill., has sold out his supply business to the Goodell & Woodworth Mfg. Co., who will sell V-groove basswood sections at from $2.75 to $4.00 per M. Other supplies correspondingly low. Samples and circular free. Address the **GOODELL & WOODWORTH MFG. CO.,**
3tfdb **ROCK FALLS, WHITESIDE CO., ILL.**

☞In responding to this advertisement mention GLEANINGS.

1888. 1888.

Pure Italian Bees and Queens

for sale in Full Colonies or Nuclei. Five L. frame nuclei a specialty. My queens and bees possess all the good qualities of the most desirable honey-bee.
Send for prices. **WM. LITTLE,**
6tfdb **Marissa, Ill.**

☞In responding to this advertisement mention GLEANINGS.

DADANT'S FOUNDATION FACTORY, Wholesale and retail. See advertisement in another column. 3btfd

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ITALIAN QUEENS BEE-HIVES,

T-TIN CASES, SECTIONS, METAL CORNERS.

Honey - Extractors, and Fruit - Boxes.
3tfd *SEND FOR PRICE LIST.*
B. J. MILLER & CO., - Nappanee, Ind.

☞In responding to this advertisement mention GLEANINGS.

Costs less than 2 cents per week.

THE CANADIAN BEE JOURNAL.

THE FIRST DOLLAR WEEKLY IN THE WORLD.

THE D. A. JONES CO., PUBLISHERS, BEETON, ONTARIO, CAN.

D. A. Jones is its editor, and this fact is a guarantee of its worth. It is thoroughly practical and contains weekly excellent articles from leading beekeepers in the United States and Canada. Fifty-two numbers make a volume of 1040 pages. American currency and stamps at par. Samples free.

☞In responding to this advertisement mention GLEANINGS.

G. B. LEWIS & CO.

WE make the best Bee-Hives, the best Sections, the best Shipping-Crates, the best Frames, &c.
☞We sell them at the Lowest Prices.
Write for free Illustrated Catalogue.

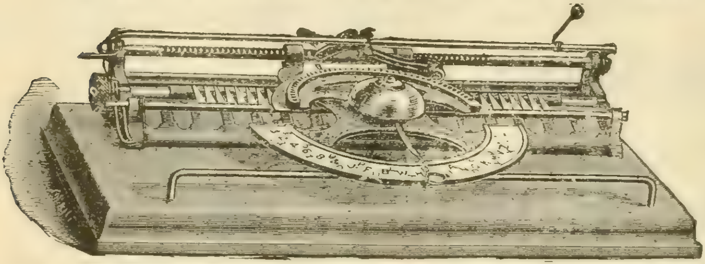
G. B. LEWIS & CO.,
1tfdb WATERTOWN, WIS.

☞In responding to this advertisement mention GLEANINGS.

FREE! My catalogue of Bees, Queens, Apiarian Supplies, Standard Poultry (7 varieties), Japanese buckwheat, Green Mountain and Empire State potatoes. My stock is first-class. You should see my prices for 1888 before you order. CHAS. D. DUVALL,
5tfdb Spencerville, Mont. Co., Md.

☞In responding to this advertisement mention GLEANINGS.

THE WORLD TYPE-WRITER, ONLY $8.00.



This little machine, I believe, is one of the triumphs of the age. With it an average person can, in an hour, write nearly as fast as he can with a pen, and in less than a week's time you can write much more rapidly. Just think, too, how much neater the work is when done. The cost, too, is so low that almost every one can have one, even though you have nothing more than your private correspondence to write on it. We have 6 in use in our office, and you now see very little pen work going out of our office. Price of this machine is $8.00. Or we will send one prepaid to any part of the U. S. for $8.75.

A. I. ROOT, Medina, Ohio.

ITALIAN QUEENS.—Untested, 75 cts. each; 6 for $4.00; 12 for $7.50. Address
13-tfdb JOHN NEBEL & SON, High Hill, Mo.

ELLISON'S

FINE ITALIAN

QUEENS

FOR REMAINDER OF SEASON FOR 1888.

1 untested queen	- - - - - -	75
3 " "	- - - - - -	2 00
1 tested "	- - - - - -	1 50
3 " "	- - - - - -	4 00

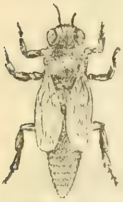
Invariably by return mail, and safe arrival guaranteed.

W. J. ELLISON, Stateburg, Sumter Co., S. C.

☞In responding to this advertisement mention GLEANINGS.

ITALIAN QUEENS CHEAP. Untested, 75c; tested, $1.25; select tested, $2.00. Satisfaction guaranteed. 14-15-17d
R. W. TURNER, Medina, O.

LOOK HERE!



I will sell Italian queens from one of A. I. Root's imported queens. One untested queen, $1.00. Tested queen, $2.00. Select tested queen, $3.00. I also give a box of my pure vegetable liver pills free with each queen. Address

DR. L. L. LOOMIS,
6-17b Pemberville, Wood Co., O.

☞In responding to this advertisement mention GLEANINGS.

Oliver Foster, of Iowa.

Italian bees, 60 cts. per lb. in July, to $1.00 in April. Pkgs. with queens, brood, etc., cheap. *No foul brood near.*

BEE SUPPLIES.—Best sections, cases, and hives. Catalogue free. Send 5 one-cent stamps for pamphlet, "HOW TO RAISE COMB HONEY,"—chuck full of practical information "in a nutshell."
4-15db Address OLIVER FOSTER, Mt. Vernon, Ia.

☞In responding to this advertisement mention GLEANINGS.

MUTH'S
HONEY-EXTRACTOR,

SQUARE GLASS HONEY-JARS,
TIN BUCKETS, BEE-HIVES,
HONEY-SECTIONS, &c., &c.
PERFECTION COLD-BLAST SMOKERS.

Apply to CHAS. F. MUTH & SON,
CINCINNATI, O.

P. S.—Send 10-cent stamp for "Practical Hints to Bee-Keepers." 1tfdb

☞In responding to this advertisement mention GLEANINGS.

DADANT'S FOUNDATION FACTORY, WHOLESALE AND RETAIL. See advertisement in another column

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FOLDING BOXES.

Enclose your COMB HONEY in our Cartons. Prices Reduced for 1888. Sample 5c. 20 page Cataloge of Glass Jars, Honey Labels, etc., FREE. Send for it. Address

A. O. CRAWFORD, S. Weymouth, Mass. 10-21db.

☞In responding to this advertisement mention GLEANINGS.

BEES, Queens, Hives, Given Comb Foundation, Apiarian Supplies, German Carp, Small-fruit Plants. Send for catalogue free. **E. T. Flanagan,** Belleville, Ills.
1-24db.

ITALIAN QUEENS.

Untested, 50 cts.; tested, $1.00. Untested, per dozen, $8.00.
I. GOOD,
10tfdb **Sparta, White Co., Tenn.**

☞In responding to this advertisement mention GLEANINGS.

✗ New Orleans Apiary. ✗

I will mail guaranteed pure Italian queens for 75 cents each by return mail. Light, large, and prolific. Also Carniolan queens for $1.00 each.
12d **J. W. WINDER, New Orleans, La.**
Care of L. B. Thompson, Jackson Pass. Agt.

Samples of the American Apiculturist

sent free. Also our price list of the best strain of pure Italian queens. Address 9tfdb
APICULTURIST, Wenham, Essex Co., Mass.

FOUND AT LAST!

A preservative that will keep eggs perfectly fresh the year round. It costs a little over a cent a dozen to preserve them. For particulars, address 12tfdb

DR. A. B. MASON, Auburndale, O.

☞In responding to this advertisement mention GLEANINGS.

WRITE TO JOHN CALLAM & CO.,
LUMBER DEALERS, KENTON, OHIO,
—FOR PRICES ON—

BEE-HIVES, SECTIONS,

And General Supplies for Bee-keepers

New Factory. Low Prices. Good Work.
3-14 db

☞In responding to this advertisement mention GLEANINGS.

TESTED ITALIAN QUEENS, $1.00 each; untested, 75c each; three for $2.00. Daughters from one of D. A. Pike's Albino queens, same price. Three-frame nucleus, with tested queen, $3.00. Bees per pound, 75c.
I. R. GOOD,
11tfdb **Nappanee, Ind.**

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CONVENTION NOTICES.

The Darke County Union Bee-keepers' Society will hold a basket meeting on the Greenville fairgrounds, Friday, Sept. 7, 1888.
J. A. ROE, Sec'y.

The fall meeting of the N. W. Illinois and S. W. Wisconsin Bee-keepers' Association will be held at Leaf River, Ill., Aug. 21, 1888.
D. A. FULLER, Sec'y.

SPECIAL NOTICES.

A BARGAIN.

We have a quantity of the old-style 24-lb. double-tier shipping-cases that we offer to close out at 10 cts. each in lots of 10 or more. Regular price was 16 cents.

OUR TRADE IN BEES AND QUEENS DURING THE PRESENT SEASON.

We naturally supposed that, after publishing the fact repeatedly of foul brood in our own apiary, it would cut off, to a large extent, the trade we have enjoyed for so many years in bees and queens. To our great surprise, however, we have had quite a heavy business, and especially during the last month. In fact, the orders have been so large that we have, once or twice, been ten days or two weeks behind. We are happy to say, however, that, at the present writing, we are all up to date, and expect to fill all orders almost if not quite by next train for the remainder of the season. Not a bee nor a queen has, however, been used from either of our own apiaries to fill these orders, unless the party ordering it understood it, and agree to take his chances of foul brood. Only three cases of foul brood have appeared, and every one of these was in hives that had been steamed or boiled. We have therefore decided to use no more of these boiled hives; and for fully two months not a cell of foul brood has been found. Our apiarist is making constant examinations, and keeping such careful watch that, when it does appear, we usually find it when there is only a single cell. If no more appears this summer or fall, we hope to be able to use our own stock next season to fill orders. Neighbor H. says nobody can tell what it costs to go out around the country and purchase bees to fill orders, compared with taking them out of our own yard. I told him I was not at all surprised. For many years, as you may know, I planned our apiaries and fixtures for the express purpose of selling bees by the pound. Our combs are all on wired frames; and for easy and rapid manipulation they are in Simplicity hives. Why, with our appliances one can put up a package of bees with a queen almost as quick as he can go out to the hives and get back again. But during the past season, to keep up our reputation for promptness, Neighbor H. has been obliged to search the country for several miles around, to get nice Italians. Our stock of imported queens has been all kept in his own two large apiaries; and the queens, with a few exceptions, are from his apiaries. Not a cell of foul brood has been discovered outside of our two apiaries here at the Home of the Honey-Bees.

Black and Hybrid Queens For Sale.

For the benefit of friends who have black or hybrid queens which they want to dispose of, we will insert notices free of charge, as below. We do this because there is hardly value enough to these queens to pay for buying them up and keeping them in stock; and yet it is oftentimes quite an accommodation to those who can not afford higher-priced ones.

Hybrid queens for 20 cts. each.
C. G. FENN, Washington, Conn.

I have about 30 choice hybrid queens with clipped wings, for sale for 35 cts. each, or 4 for $1.00. Safe arrival guaranteed.
GEO. H. DENMAN, Pittsford, Mich.

FOR SALE.—Eight hybrid queens (not mismated Italian) ranging from *almost* pure Italian, to nearly black, for 30 cts. each. First orders take the best.
KIBBE BROS., South Cuyler, Cortland Co., N. Y.

I have 15 good hybrid queens that I wish to dispose of. I will exchange them for foundation, or Simplicity frames, at 50 cents each. They were raised from a purely tested Italian queen, but mismated; they are splendid layers, the hives boiling over with bees now.
B. G. LUTTRELL, Luttrell, Ala.

Hybrid queens for sale, 35c each, or 3 for $1.00.
GEO. L. FERRIS, Prairie Farm Apiary,
Five Corners, N. Y.

125 black and hybrid queens to give away till the 10th of August. Send stamp and price of cage.
ANTHONY OPP, Helena, Phillips Co., Ark.

I have 12 good black queens which I will send by return mail in new Peet cages, at 30c each or 4 for $1. They were reared in '87, and are good layers, mostly mated with Italian drones.
LESLIE STEWART, Jefferson, Scho. Co., N. Y.

20 mismated Italian queens at 25c each if you will send cage; if not, 10c extra. 5 black queens at same price. H. E. & E. L. PRATT, Marlboro, Mass.

I will have some 12 or 14 black queens about Aug. 10, which I will mail in my Safe cages for 25 cents each, with no other guarantee than safe delivery. A few hybrids at 50 cts., in same cage.
S. A. DYKE, Pomeroy, Ohio.

FOR SALE.—A few young hybrid queens, good layers, 50 cts. each; safe arrival guaranteed.
H. L. FISHER, Milford, Ind.

BEES and queens cheap. Tested queen, $1.50; untested, 75 cts. Bees, per lb., 85 cts. Nuclei a specialty. Send card for price list.
MISS A. M. TAYLOR,
15tfdb Mulberry Grove, Bond Co., Ill. Box 77.

A POSITIVE FACT.
QUEENS BY RETURN MAIL FROM THE OLD AND RELIABLE
KNICKERBOCKER BEE-FARM
(Established 1880).
Warranted, $1.00; tested, $2.00. Special rates on large orders. Circular free. 15-16-17d
GEO. H. KNICKERBOCKER,
Box 41. Pine Plains, Dutchess Co., N. Y.

ITALIAN QUEENS.
Untested, 50 cts.; tested, $1.00. Untested, per dozen, $8.00. **I. GOOD,**
10tfdb **Sparta, White Co., Tenn.**
☞In responding to this advertisement mention GLEANINGS.

DADANT'S FOUNDATION FACTORY, WHOLESALE AND RETAIL. See advertisement in another column

HONEY COLUMN.

CITY MARKETS.

CINCINNATI.—*Honey.*—There is no change to note since our last quotation. Comb honey is dull, and offered at 12@15c in the jobbing way. Extracted honey is in fair demand for manufacturing purposes; for table use, it brings 5@8c on arrival.
Beeswax.—Demand is good; 20@22 for good to choice yellow. CHAS. F. MUTH & SON,
July 24. Cincinnati, Ohio.

DETROIT.—*Honey.*—No new in market. Old not selling. Most of it in dirty cases and uncleaned sections. Those shipping honey to Detroit would do well to remember that small cases sell much more readily than large. Prices remain the same; viz., 14@15. *Beeswax.* quiet at 22@23.
Bell Branch, Mich., July 24. M. H. HUNT.

ST. LOUIS.—*Honey.*—No special change in honey market since last report. Receipts light, demand a little better. *Beeswax* steady, 22c for prime.
W. B. WESTCOTT & CO.,
July 23. 202 N. Main St., St. Louis, Mo.

ST. LOUIS.—*Honey.*—No quotable change in market since our last. New crop receipts rather light. Sales moderately active; strained and extracted in barrels, 4¼@5½; cans, 4@8. Comb, choice, 13@15.
Beeswax, prime. 22c. D. G. TUTT GROCER CO.,
July 23. 206 N. Commercial St., St. Louis, Mo.

KANSAS CITY.—*Honey.*—We quote: New 1-lb. comb, white, 18@20; old 1-lb. white, 16@18; old, 2-lb. white, 14@16; old. 2-lb. white. California, 14. Old extracted, California. 6@7. No new extracted in market. *Beeswax*, no new in market.
market. CLEMONS, CLOON & CO,
July 25. Kansas City, Mo.

BOSTON.—*Honey.*—We have no changes in prices of honey, and sales are light.
wax. BLAKE & RIPLEY,
July 23. 57 Chatham St., Boston, Mass.

CHICAGO.—*Honey.*—Honey in one-pound sections sells at 14@15; extracted, 7@8. There is a little new honey of both comb and extracted offered, but as yet the demand is very light. *Beeswax*, choice, 22.
R. A. BURNETT,
July 22. 161 So. Water St., Chicago, Ill.

COLUMBUS.—*Honey.*—The stock of light in 1-lb. sections scarce, and good demand; moving in lots, 16; 2-lb. sections, slow sale at 12. Dark selling at 10. Receipts of new, very light this week, and mostly too dark to bring top price. Fine stock would move quick at good prices. Extracted moving moderately, 12c. Glass cased objected to largely by consumers, on account of tare.
July 21. EARLE CLICKENGER,
119 South 4th Street, Columbus, O.

FOR SALE.—13 crates honey, 24 sections each. Will take 17c on board cars here; you pay freight and return crates. J. D. STEDMAN,
Charlestown, Portage Co., O.

BEES, Queens, Hives, Given Comb Foundation, Apiarian Supplies, German Carp, Small-fruit Plants. Send for catalogue free. E. T. Flanagan, Belleville, Ills.
1-24db.

New Orleans Apiary.

I will mail guaranteed pure Italian queens for 75 cents each by return mail. Light, large, and prolific. Also Carniolan queens for $1.00 each.
12tfbd **J. W. WINDER, New Orleans, La.**
Care of L. B. Thompson, Jackson Pass. Agt.
☞In responding to this advertisement mention GLEANINGS.

BEE-VEILS, 35 CENTS, complete, equal to the best. Satisfaction guaranteed. Sent postpaid. 15d G. BACON, Bucyrus, Ohio.

DADANT'S FOUNDATION FACTORY, WHOLESALE AND RETAIL. See advertisement in another column. 3btfd

RUBBER * STAMPS.

I will send the new ***Novelty pen and pencil stamp***, from one to four lines, for ***50 cts.*** postpaid, with ink and box. Also the ***Midget self-inker*** at reduced prices. Send for circular.
15-16d F. A. MURPHY, Delhi, N. Y.

J. F. Wood IS NOW PREPARED TO send promptly those beautiful Italian queens (every one warranted) that have given such universal satisfaction the past three years, at the low price of 75 cts. each; $4.25 for 6; $8.00 for 12. Ninety-eight per cent of all queens sold last season proved purely mated. J. F. WOOD,
13tfdb *Mention Gleanings.* North Prescott, Mass.

SPLENDID BARGAIN.

$1.500 will buy the Alderbrook poultry farm and apiary; 100 colonies healthy bees in improved hives; good house and barn and poultry houses, all new. Location pleasant and healthy; well watered. Speak quick; who takes it?
D. E. DARROW, West Eaton, Madison Co., N. Y.
☞In responding to this advertisement mention GLEANINGS.

FOR SALE. Italian and Hybrid Bees. Hybrids, 50 cts., Italians, 60 cts. per lb. Hybrid brood, 40 cts.; Italian brood, 50 cts. per frame. Will include with each six lbs. of bees, one-story 8-frame Langstroth hive, or one queen. Correspondence solicited.
15d JOHN DARR, Darrtown, Butler Co., Ohio.

LOOK HERE, FRIENDS!

If you want to buy bees cheap, write for prices, as I have about sixty colonies that must be sold.
Address DR. G. R. JOHNSON,
Groom's Corners, Saratoga Co., N. Y.

Bee-Keepers, Now is Your Time!

DURING AUGUST I WILL SELL

10	24-lb. shipping-cases, in flat, for	$1 20
100	" " " " "	11 00
10	12-lb. " " " "	65
100	" " " " "	5 50

J. M. KINZIE,
12tfdb **Rochester, Oakland Co., Mich.**
☞In responding to this advertisement mention GLEANINGS.

THE AUTHORIZED CAPITAL
BY GOVERNMENT CHARTER, OF THE
D. A. JONES CO., Limited,
Is ***Forty Thousand Dollars;*** subscribed and fully paid up, ***Eighteen Thousand Nine Hundred.*** We require two more practical men to assist in the management of our large supply-business, who could invest two or three thousand dollars each, which will be fully secured.
☞In responding to this advertisement mention GLEANINGS.

DADANT'S FOUNDATION FACTORY, WHOLESALE and RETAIL. See advertisement in another column. 3tfbd

J. P. Moore

Has on hand a lot of fine tested Italian queens, which he will sell at $1 00 each, until further notice. DON'T LET THIS CHANCE SLIP, as it may not occur again this season. Warranted queens, 75 cts. each. Safe arrival and satisfaction guaranteed.
15 J. P. MOORE, Morgan, Pendleton Co., Ky.
☞In responding to this advertisement mention GLEANINGS.

PURE ITALIAN QUEENS.

Tested, $1.25 each; untested, 70 cts. each; 5 for $3.00. All bred from a select imported mother. Safe arrival guaranteed by return mail.
15-16d **D. G. EDMISTON, Adrian, Mich.**

PURE Italian and Albino queens, $1.00 each.
15-16d GEORGE J. HALL, Rumney, N. H.

GLEANINGS IN BEE CULTURE.

DEVOTED TO BEES, HONEY, & HOME INTERESTS.

Vol. XVI. **AUG. 1, 1888.** **No. 15.**

TERMS: $1.00 PER ANNUM, IN ADVANCE; 2 Copies for $1.90; 3 for $2.75; 5 for $4.00; 10 or more, 75 cts. each. Single number, 5 cts. Additions to clubs may be made at club rates. Above are all to be sent to ONE POSTOFFICE.

Established in 1873.
PUBLISHED SEMI-MONTHLY BY
A. I. ROOT, MEDINA, OHIO.

Clubs to different postoffices, NOT LESS than 90 cts. each. Sent postpaid, in the U. S. and Canadas. To all other countries of the Universal Postal Union, 18 cts. per year extra. To all countries NOT of the U. P. U., 42 cts. per year extra.

BEE-VEILS; CONTRACTING, ETC.

FRIEND DOOLITTLE GIVES HIS REASONS FOR HAVING A BEE-VEIL PERMANENTLY ATTACHED TO THE HAT HE WEARS IN THE APIARY.

A FEW of our fraternity seem to think that bee-veils can be dispensed with; but I think that the time has been in the life of nearly every one when a veil would have been a great consolation, if they would own the real truth in the matter. I can get along very well the most of the time without a veil, but occasionally I want one very much; and in order to have one when I want it, I wear one all the time. Besides the stings, I am of a peculiar nervous disposition, so that any thing like something crawling upon my neck when I am warm and sweaty irritates me in the extreme; and even if bees never stung me I would wear a veil on hot days when extracting honey, to keep the young crawling bees and flies off my neck and face. Then, again, there is a certain feeling of safety from the unexpected anger of the bees that gives one great confidence when with the bees, that is worth more to me than all the rest. I work with the bees, with no more fear of stings than I would feel were I at work in my garden, while my veil is on; but as sure as I try to work with it off, I am on the lookout for what may happen all the time. I have been stung very severely several times in my life, getting over 100 stings in less than a minute at one time; and when any one says it does not hurt to be stung, I am inclined to think he has a strange way of telling the truth. The veil, as I wear it, is little if any in the way, for it is made throughout of bobinet sewed to the rim of an ordinary chip hat. I prefer a hat of this kind, all things considered, as the white color does not absorb the heat, and it is sufficiently firm to resist the wind to a better degree than a hat of cloth material. The bobinet that I use is that whose mesh is made in a hexagonal form, for this seems to obstruct the vision less than any other form, even though the square form of mesh may be much coarser. To fasten around the neck, I throw the back part of the veil back over the shoulders as far as may be, then run each hand under the suspenders in front, grasping the veil, when it is drawn, with the hands, out under the suspenders at the side. This draws the veil out from the face all around, so it does not touch the person at all, leaves a free circulation of air, and is held as by a vise under the suspenders, if they are of the kind which have rubber in them.

CONTRACTION.

"To how great a degree shall we contract our hives when the surplus apartment is on?" is a question often asked of me, and perhaps it might be well to say a few words on that subject, as I have, undoubtedly, practiced contraction as long if not longer than any other person in the apicultural pursuit. Now, I do not practice contraction of the brood-chamber as soon as the sections are put on, as some do, for I hold that there is a proper time for this part of our work, as well as in all else which we do, and this time is governed by the time our surplus comes in. If we contract too soon we cut off the supply of bees that we must have to gather our crop of honey; and if too late, then we spend our honey in raising a useless lot of consumers. I give the queen all the room she will occupy till the main honey-harvest commences, when the brood-chamber is contracted down to about 600 or 700 square inches of frame space, according as a given number of frames make it. I usually use but six Gallup frames in time of contraction, which give 690 square inches of frame space. Sometimes I use but four, and often only five, this being governed by the size of the colony, contracting all to suit their numbers, so that the most honey may be obtained while the harvest lasts. In taking away the extra brood, if a few bees are taken with it and the hive closed tight for a few days, a new colony can be formed with it, or such can be used in forming nuclei. Now, there is one thing that I do along this line of contraction that no one else practices, that I know of, still they may do so and I not know it. As soon as the harvest of white honey is over, I take off the surplus arrangement, take out the dummies, and fill out the hives with combs the same as it was when I was raising bees for the harvest. This I do for two reasons: 1. Honey has proven to be equally good for my bees to winter on, with sugar syrup, and on the whole I prefer it to the syrup; so if any honey is stored after this, it is in the combs where I want it for wintering purposes. 2. The enlarging of the brood-nest at this time gives me plenty of young bees for winter, and this is really necessary where the contraction has been closer than six frames. Six frames will give plenty of bees for winter, if the bees have not crowded the queen with honey; but, as a general rule, there is nearly honey enough to winter the colony on where that number of frames has been used, with the Italian bees. In this case the empty frames are placed in the center of the hive, while if the frames are filled with brood they are placed on the outside. If brood is lacking, and it is getting late in the season, I frequently take the brood from the nuclei I made with it, when formerly taken away from the colony, and give it back to them, using the nuclei up in rearing queens, so that, when I get through queen-rearing in the fall, the bees of the nucleus have nearly all died of old age. In this way I get my bees in good shape for winter, having very little uniting or feeding to do. G. M. Doolittle.

Borodino, N. Y., July 14, 1888.

Friend D., you have given us some excellent reasons for wearing a veil. I, too, am nervous, like yourself; but the bee-veil would make me more nervous, I believe, than the bees or stings, unless I could have one that would not obstruct my breath in the least, nor make me uncomfortably warm. I do not believe we know exactly what it is you call bobinet. Will you please mail us a little bit for a sample? Perhaps we will have an engraving made, to show the size of the threads and the size of the mesh. It is a very important matter to have the very best fabric the world can produce—that is, at a moderate price, for the construction of bee-veils.—I have always been a little skeptical in regard to any kind of contraction that recommended taking away brood or bees. When the honey-harvest is nearly over, it might answer to take away some of the unhatched brood; but who can tell with any degree of certainty when the honey-harvest will close? As a rule, it closes with us from the middle to the latter part of July; but once in four or five years we have quite a flow from red clover; and taking away brood or bees at such a time would be a pretty sad blunder.

REPORT FROM MISSISSIPPI.

OUR OLD FRIEND O. M. BLANTON TALKS A LITTLE DOLEFUL.

BRO. ROOT:—Your postal card to me, requesting statistics in regard to bee-keepers and the honey crop would be a most difficult one, as I should have to travel over the entire State and canvass every county, as we have no bee-keepers' conventions in the South that I know of, except Kentucky. Before honey became so low in price, the Southern bee-keepers had quite a furore for embarking largely in the production of honey; but last year, and the year before, so discouraged them that the greater number abandoned the business. In this county, where there were 20 bee-keepers in the business on quite a large scale, there are none now, with the exception of myself and Ellen Foster, an old colored woman, a pupil of mine, who has 150 colonies.

There are many occupations in this rich country that are more profitable. There are but few small farmers, but the greater portion are large planters who devote their time almost exclusively to the cultivation of cotton. Diversified farming is carried on to a great extent in the hill country; but in this immense alluvial region, cotton is emphatically "King." My business is so extended that I can not give my apiaries half the attention they require, and the help is so indifferent that I labor under great disadvantages. I am now employing both colored and white labor, and succeed about as well with one as the other.

The spring was too cool and wet for much of a honey-flow, and not until May did we extract any surplus. June was very wet—raining every day, and some days in torrents, destroying the nectar, and damaging the cotton planter with an excess of weeds and grass. So far I have not taken off any comb honey; but for the last week the bees have been gathering honey rapidly, and I am now going over my apiaries for extracted honey the second time. The yield so far has been only 5000 lbs. from 350 colonies, spring count. These have increased to 450. The bees are capping over in the greater portion of my hives, and I contemplate a good yield for the next six weeks.

I have just returned from my mountain home at Monteagle, Grundy Co., Tenn., where I found my bees had stored a great quantity of honey from honey-dew—the veritable "louse-juice" described by Mrs. Chaddock. Friend Wells had a great quantity, and I think he will have a difficult time disposing of it.

After the honey-dew flow was over, the bees brought in some beautiful basswood honey; and when I left they were working diligently on sourwood, which grows in the greatest abundance on the mountain plateaus.

I regret that I can not give you an accurate report of the bee-keepers and their honey-yield in this State. I should at least rate it very low from the abandonment of the business by so many.

Greenville, Miss., July 9, 1888. O. M. Blanton.

P. S.—*July 16.* I am now again at Monteagle, and found my bees had made poor progress, owing to the frequent showers. At Greenville, on the 10th

and 12th we had heavy showers, and I fear the prospect will be poor for honey throughout the South.

O. M. B.

Many thanks, old friend, for giving us the facts, even though the facts are a little depressing. I am glad to know, however, that there is such a field for occupation, and I presume for capital also, in your Southern State. I am sorry, however, to find that honey-dew has made its appearance with you as well as in some other localities during this rainy season. Your remarks are rather encouraging to our colored friends, even if they are a little discouraging to the white laborer. I think the time is coming, friend B., when your State and those adjoining will have their resources better developed than at the present time. I often think of the miles and miles of the most beautiful farming region I ever passed over, that seems to lie year after year in comparative neglect. It seems a little strange, however, that there should be such a universal dearth of honey, the nation over.

JOHN'S VISIT TO THE HOME OF THE DADANTS.

THE WAY FOUNDATION IS MADE AT THE LARGEST ESTABLISHMENT FOR THE PURPOSE, ON THE FACE OF THE EARTH.

I HAVE just been attending the national convention of Young People's Societies of Christian Endeavor which met in Chicago 4000 strong, the largest and most enthusiastic religious gathering of modern times, and, I believe, with the most practical, far-reaching, and beneficent object. Having a couple of days at my disposal I improved the opportunity to make a visit to Messrs. Dadant & Son, who are renowned for their unequaled comb foundation, and that renown is well deserved too; for when I saw how much care they exercised in the making of it from first to last, I was not surprised at their immense sales, amounting to about 30 tons in the season of 1887. Their plan of making their workmen share in the profits of the year's business, I believe was no small part toward securing the perfection they have attained.

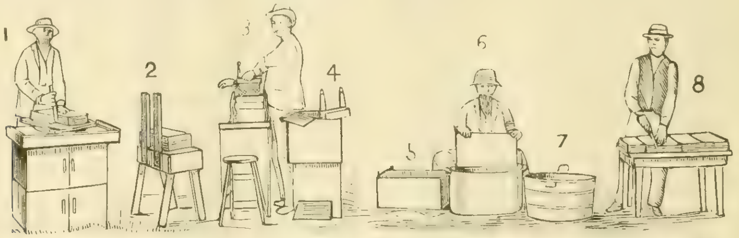
When I reached Keokuk, Iowa, just across the river from Hamilton, I concluded that I could walk over and reach there in a short time. When I had crossed, however, I found that they lived from two to two and one-half miles out in the country. They had been having very wet werther in this region, and the road was very muddy, so that you may guess I had "a picnic." The cordial welcome I received well repaid my weary march, and I felt at home at once.

Messrs. Dadants' home and factory are situated about one mile east of the Mississippi, and back in a pleasant grove about a quarter of a mile from the road. It is a cosy spot, and quite secure from intruders. In fact, they are right in the midst of the woods, and one has to look sharp to see the place at all. I reached there about 11 o'clock, and, after making myself look as presentable as possible after my tramp through the wet grass across the fields, I found Mr. C. P. Dadant at work in the packing-room of the factory. I had no sooner made myself known than all work was dropped, and I was entertained and made to feel at home at once. After a few moments' greeting with his father, Mr. Charles Dadant, we proceeded to look over the celebrated foundation-factory. We first visited the building where the wax is received, assorted, and clarified. In this building is a large scale on which the wax is weighed when received from the depot; and while it is being emptied from the packages it is assorted into two bins, one of them for light section foundation, and the other for brood foundation. It is next put into a large copper tank holding about 1200 or 1500 lbs , and melted. In this tank is first placed several inches of water. The wax is drawn from a faucet a little above the water, into long cans about a foot in diameter at the top, ten inches at the bottom, and 20 inches deep. These cans are set in a cupboard at the side of the room, which is made with double walls and doors, so as to keep the wax in a melted state as long as possible. Sometimes it remains melted over 48 hours. This allows the impurities to settle to the bottom, to be scraped off when the cakes become hard. No matter how nice the wax may be, every pound is subjected to this melting process, which is regarded of great importance. You know they guarantee every inch of their foundation equal to the sample in every respect. To do this they must have foundation of uniform color, and this can be easily managed by melting up a large quantity of wax in one body, thus making it all alike. Each tankful is chosen from the wax-bin in such a way as to produce about the same color each time—that is, if there happens to be quite a good deal of dark wax, considerable light wax must be put in with it to make a uniform color each time. Then, again, it serves to eliminate a great deal of impurity from the wax, which would otherwise be made into foundation. These large cakes of wax are stored away in a separate building which is made of iron, and is fire-proof. This building is very small, but represents a good deal when full of wax. It is situated apart from the other buildings, so as to lessen the danger from fire. We next pass into the dipping-room, which is one of the rooms in the main building.

We have had a rude engraving made to help you to understand the operations I will next describe. Owing to delay in getting a photograph, we could not give the engravers very much time; but if they have not produced a very elaborate picture, we can at least get the ideas we want from it. For dipping, a common wash-boiler is used, with a common wash-tub on one side, and a tempering-tank on the other, which I believe is made of wood. A wash-tub might also be used here. These are represented by numbers 6, 7, and 5 in the engraving. No. 5 holds tepid water, and No. 7 cold water, and the melted wax, of course, is in the wash-boiler. The wax is supplied by dipping from a melting-boiler on a stove near by. For sheets of wax the right size for the Langstroth frame, they use a dipping-board about 12 x 17 or 18 inches. This is immersed with one edge down three or four times in the melted wax, allowing it to cool each time. It is then dipped into the tub, simply to cool the lower edge enough to handle, then reversed and dipped three or four times with the other edge down. It is then placed in the tepid-water tank No. 5. The wax sheets are then peeled off the board and piled up until they have a pile about a foot and a half to two feet high. Then with a large knife about the size of a hay-knife, with a handle on each end, the sheets are cut down through the middle, like the sheets shown in No. 8 in the engraving. The table there has two piles of these sheets. The pile at the right hand is cut into large pieces of about 9 x 12 inches, the right size for a sheet of foundation for the L. frame, after passing through the rollers.

For thin foundation the sheets are not dipped so thick, and are cut into four strips instead of into two, as at the left of table. These sheets of wax are now stored away in the cellar below the rolling-room, and allowed to "season," as they will work much better on the foundation-machine after having been dipped several days, than if put through the machine at once. Of course, they have several sizes of dipping-boards, and the sheets are cut into different sizes to suit the different frames in use.

We next enter the room where the sheets are run through the foundation-mills. In this room are 15 of these mills. Of course, these machines are not all used at one time, but they have a good supply, so that, in case of accident, their work may not stop until a new machine can be obtained. All but one of these machines are Vandervort's make, and are made especially for the Messrs. Dadant. The process of rolling is about as follows:



THE WAY IN WHICH OUR FRIENDS THE DADANTS MAKE COMB FOUNDATION.

No. 4 in the picture is to represent a tin tank sufficiently large to contain two piles of wax sheets. After the sheets are in, the tank is filled with water of about 110 degrees temperature. One of the operators sits on a stool in front of No. 3, and before him is a circular tin trough to catch all the drip, the bottom depressing toward one point, from which a tin spout carries the water into a vessel beneath. This man starts the sheets of wax into the rollers, while the man who turns the crank applies the lubricant, which is soap dissolved into a jelly, and is applied with a brush to the upper roll after each sheet has passed through. There is also a trough under the lower roll, containing the same lubricant. A common horn comb, about 8 or 9 inches long, is used to start the end of the sheet from the roll as it comes through; and as soon as it has been turned through far enough, the operator sitting on the stool grabs the end of the sheet with the gripper shown under No. 4 in the engraving. This is a very convenient tool, and consists of two pieces of wood about 2 x 9 x ⅜ thick, with a coiled spring at either end like those used on the Clark smokers, but of lighter wire, so as to be more easily worked. The springs keep the pieces apart ready to grab the end of the sheet. The sheets of foundation, after passing through the mill, are piled up carefully against the uprights on bench No. 2, and from this are taken to the trimming-bench. If a sheet of wax in passing through adheres partly to one of the rollers and partly to the other, it is thrown out and not used; or if there is any imperfection in the sheet, so that a perfect sheet of foundation can not be cut from it, it is also thrown out. So great care is taken in this respect, that Mr. Dadant told me that, out of 1800 lbs. of wax dipped, only 1000 are used, the rest going back to be melted over again. Great care is also taken to have the right number of feet to the pound. A table is written out and posted in front of the trimming-bench, giving the number of sheets of each size required to make so many feet to the pound, and three or four times a day a pile of sheets is taken from the mill, trimmed and tested; and if not of the proper thickness to make the required number of feet to the pound, they have to go back and be worked over again. It is no wonder that the Dadant foundation is celebrated, from the care taken in its production.

After the foundation is trimmed it is stored away in piles, and each grade properly labeled, ready for orders. The boxing is done in a separate room, so as to exclude all dust and liability of nails and slivers getting into the foundation-machines. After a pleasant noon-day repast with the family, we proceeded in a wagon to Hamilton. As Mr. Dadant was leaving that day for another part of the State, I had the pleasure of his company back on my way home as far as the station. This wagon usually makes one trip daily from the factory to the village, but in busy seasons two trips. In it the mail, freight, and express are carried back and forth. I got acquainted with a couple of Mr. Dadant's faithful helpers who have been with him many years, and it reminded me of the many faithful helpers at the home of the honey-bees, who have been with us quite a length of time, and I thought that these employes who made their employer's interests their own were the ones destined to become the trusted and faithful helpers who would hold their places year after year. "Let each esteem other better than themselves," is a good motto still, though spoken over 1800 years ago. It was a profitable and enjoyable visit, and an earnest invitation was extended to renew it in the near future.

As the space allotted to me is about full, I shall have to tell you of my visit to C. C. Miller in the next number.

SPIDERS, WIRE WORMS, AND PLUG HATS.

PROF. COOK GIVES A TALK ON FAMILIAR SUBJECTS.

EDITOR GLEANINGS:—The larvæ, or grubs, of the little striped squash or cucumber beetle feed on the roots of the plants in the ground. That some of them should come up within the covers of the plants is entirely natural; yet this need not deter any one from using these valuable protectors; for there will never be enough beetles inside the boxes to do any serious mischief.

SPIDERS.

I have never meant to say that spiders were not poisonous. All spiders have poison-glands, and secrete venom, I think. What I have said is, that the common dread of spiders is wholly unnecessary. *Our spiders* are all, so far as I can determine, entirely harmless. Their bite is too feeble, and the venom too slight to affect us. I have taught my children that spiders may be safely handled, and are to be admired just as much as any other of the beautiful creatures God has given us. Emerton, the greatest student of spiders that we have in America, agrees with me in the above opinion.

As to the toad and the plantain, I quite agree with you. I think there must be some mistake, certainly in the conclusion, probably in the observation. I doubt if toads eat plantain. I don't believe any of our toads would mind any spider-bite that they could get here. If bitten and poisoned, the plantain, even granting it had virtue, could not, as you urge, bring such speedy relief. That the plantain has any such virtue, is very questionable.

Yes, friend Root, wire worms are really the grubs, or larvæ, of the snapping-beetles (not bugs) that you and I used to play with in our pop-gun days. You refer to the great elater, or snapping-beetle, often nearly two inches long, which is mottled gray-black, with two velvety black spots on its pro-thorax. You ask if those are its eyes. Why, bless you, my good friend, no. Eyes are on the *head*. Yet their eye-like appearance evidently led to the name of the beetle: *Alaus oculatus*. The grubs live in decaying wood, and are often found in the decaying trunks of apple-trees. These grubs sometimes reach a length of 2½ inches.

You ask me if I can tell you about dandruff. Well, not much. Yet I have a view in regard to heads which your question calls to mind. If my view is correct, then it gives a practical hint which we may all heed. The outer skin of the head, and the hair as well—indeed, the hair is only modified skin—are nourished by blood-vessels which ramify the scalp. The arteries which lead to these pass up in the scalp just about where the Derby or stovepipe hugs the head.

It has been suggested that baldness is owing to hard stiff hats which press these blood-vessels, cut off the supply of blood from the scalp, and so the hair, as it is improperly nourished, falls out. Likewise may it not be that the outer skin is similarly starved and finds a premature grave? hence dandruff. I imagine "Old Uncle Ned" wore a stiff hat—very likely he was also troubled with dandruff, though, so far as I can learn, tradition is silent on that point. Do you know that women and farmers are rarely bald? Well, they do not torture the head with harsh hats, and thus throttle the scalp circulation. Now, friend Root, if I remember correctly, you are thin of hair on your crown. Did you not indulge in the luxury (?) of a stovepipe when you were younger? I never wear a stiff hat, and I expect to have a bountiful head-covering of nature's own furnishing, even till I am fourscore. I do not say that soft hats will prevent baldness or dandruff in all cases. The law of inheritance is too potent for that; but I do believe they will tend powerfully in that direction. A. J. COOK.

Agricultural College, Mich.

Friend Cook, I am glad to tell you that I never did wear a plug hat—that is, not more than half a dozen times. And do you know that one reason why I have always liked you so well is because you do not wear a plug hat, even if you are a professor? I do not care so much about the hat itself, but I have always been afraid of the general run of professors. I do not mean by this that I have any fault to find with them, but the fault is with myself. I am really *glad* they know so much, but I am sorry that I know so little. I have always worn a soft hat; but of late years unless I wear it indoors as well as out — that is, when there is much of a breeze stirring—I am afflicted with a trouble in my throat, and may be this throat trouble has indirectly been the cause of the bald head and dandruff too. Somebody has asked the question why women are seldom bald, and suggests that they go bareheaded many more hours of their lives than men do.

POISON IVY.

DR. TYRRELL'S REMEDY; SEE PROF. COOK'S REMEDY, PAGE 512.

FOR the benefit of Prof. Cook's students, and all others who may come in contact with poison ivy, poison sumach, rattlesnakes, and other poisonous reptiles and insects, I wish to inform them that *lobelia inflata* has been in my practice (botanic or physio-medical) a successful remedy. I think I have saved very many lives with it. My brother, A. Tyrrell, M. D., and I, who have been in the practice of medicine over fifty years, were poisoned very badly every summer when we were boys at work on the farm. We suffered torments for what we thought was no sin. When scratching and rubbing were irresistible, we rubbed our feet and legs with many kinds of herbs in trying to stop the itching and burning, but with very little relief until we used green lobelia herbs, which relieved our sufferings every time after, when we got poisoned. I thought then that the knowledge we had gained of lobelia was worth fifty dollars to us as antidote for ivy poison. Many surgeons have died from being poisoned with the virus of dead bodies. I think the strong tincture of lobelia saved my life when poisoned by such virus when I was surgeon-in-charge of smallpox hospital in South Carolina, in March, 1865. The herb or seed, bruised, may be tinctured in alcohol or pure cider vinegar. Every one should know how and when to use lobelia for many forms of disease as well as for "blood poisoning." D. TYRRELL, M. D.

Toulon, Stark Co., Ill., July 16, 1888.

Thank you, friend T. I have much faith in lobelia, even if I have not in many other herbs that are recommended and used for medicine. I have before mentioned, that, when I was quite young, I was subject to a distressing cough and lung trouble. This cough troubled me so much when I was a child that I used to gather the green stalks of the lobelia, and chew them, to stop the cough. It very soon produced a nausea (it was not imaginary either) that stopped the cough, and I can readily imagine it might in the same way prove a remedy for the disagreeable effects of the poison ivy.

THE INVENTION OF A PRACTICAL FRAME HIVE.

WHO INVENTED THE FIRST HANGING MOVABLE-COMB FRAME?

THE article of C. J. Robinson was written through some misunderstanding. The statement in Mr. Cheshire's book is incorrect in so far as he says Dr. Dzierzon invented a *frame* hive. The proof of this incorrectness is easy to find in the books of Dr. Dzierzon, Baron Berlepsch, and the German *Bienen Zeitung*. He invented his hive with comb-*bars*, and is still against the use of frames in the brood-chamber. I think this is proof enough. Mr. Langstroth's hive may have been patented in 1852, but before any thing can be patented it has to be invented. Mr. Cheshire said it was invented in 1851. Prof. Cook says in his Manual, that Mr. Langstroth applied for a patent in January, 1851.

That Mr. Langstroth's hive is the first *hanging*-frame hive is not set aside by Mr. R.'s article. Neither Munn's nor Robinson's hive had *hanging* frames (see Cook's Manual). More important is it, that the L. frame is the first *practical* bee-hive. For instance, everybody knows that Robert Fulton is the inventor of the steamship (1807), although Papin used a steamship just 100 years earlier. This, because Fulton solved the problem in a *practical* way. So is Langstroth the inventor of the frame hive, as Fulton is the inventor of the steamship.

I am surely more conversant with the German bee-literature than Mr. Robinson, so I can say it is a mistake that Dr. Dzierzon and Berlepsch invented the upright frame ventilator. This hive is the invention of the Englishman Nutt, but impractical. It is incorrect, if Mr. Robinson says Baron Berlepsch put bees in a hive with frames instead of bars in June, 1843. He did not know any thing of comb-bars before 1845 (see his book, "Die Biene," pages VIII. and 346). He improved this bar and *not* the frame by the projectors (see his book, page 348), and invented his frame in 1852 and 1853 (see B. Berlepsch's biography by his friend, W. Vogel, and in Berlepsch's book, page X.). Surely the Baron himself is the best authority in this question. If Berlepsch used any movable combs before 1845 it was Huber's hive for scientific experiments, but not for practical bee-keeping.

In the different volumes of the *Bienen Zeitung*, Dr. Dzierzon tells us why he is against frames and for his comb-bars, and gives some practical reasons. It is a mistake, if Mr. R. thinks Dr. Dzierzon works with bees more scientifically; he is a practical bee-keeper, too, and has had about 300 colonies since 1843. So we see that I am able to prove every one of my statements in my article of May 15, and Mr. R. has not proven the contrary.

Prof. Cook gives in his Manual a history of the invention of movable combs, and, so far as German inventors are mentioned, this history is fully correct. In this history the Munn and Robinson hive are mentioned, and this is all they can desire.

Selma, Tex., July 14, 1888. L. STACHELHAUSEN.

Friend S., you have given us some very important facts. But Medina County has the honor of being the birthplace and home of an inventor of whom perhaps you have not heard. We make the following extract from an article published in the *Scientific American*, March 6, 1847, page 187. As much of the article is comparatively unimportant, I have simply taken sentences here and there. I was for many years well acquainted with the writer of the article.

Mr. Editor:—The following is a brief description of a bee-hive which I have constructed and have now in my possession, and for which I intend to apply for letters-patent as soon as a model and drawings are procured, unless previously satisfied that the invention is not new. * * * A sufficient number of frames, according to the dimensions of the hive, are formed by uniting with beams or cross-bars of sufficient length to reach *across the hive and rest in the rabbets*, two upright posts with each bar or beam, etc. * * * Each frame resembles a window-sash, constructed to receive two panes of glass, with one of its end-pieces projecting beyond its sides. The beams and posts are about $1\frac{1}{8}$ inches in width, and are placed at from three to five eighths of an inch from each other. * * * These frames, with the combs attached, may be removed at pleasure. * * * The combs may be renewed by removing the frames that are filled, and supplying their places with those that are empty, when the bees will reload them. * * * Having observed, in the *Scientific American*, descriptions of new inventions for which it was stated that the inventors intended to apply for letters-patent, and thinking that such publication might be beneficial to them by informing the Commissioner of Patents and others of the existence of the thing described, I have thought it expedient to forward this communication to you, confiding that you will make such disposition of it as will not be detrimental to my interests. JACOB SHAW, JR.

Hinckley, Ohio, Feb. 8, 1847.

The italics in the above are my own. It is a little odd that neighbor Shaw, in undertaking to make a movable-comb hive, concluded from what he knew of bees that they would wax and gum the frames so fast to the hive they could not be taken out. He, however, made the hive proper of double walls of tin, just about like our lamp-nursery, with the expectation of being able to pour hot water in the space between the walls, to loosen the propolis fastenings. But he soon found that no hot water was needed, and I believe he never used any. His frames fitted about as closely to the hives as friend Heddon uses them in his new hive.

A LONG-FACED LETTER.

A DISCOURAGING REPORT, WITHOUT ANY MISTAKE; "TO FEED OR NOT TO FEED."

THIS is a *long-faced* letter; and anybody who feels a little blue had better not read it. Last spring I had 22 colonies of bees; they had wintered well, and were the fullest and finest bees that I ever had. I had every thing ready for a tremendous honey-flow; but the dry weather came, and it was all the bees could do to gather enough to live on—*more* than some of them could do, in fact. Last fall I doubled them up to 17; 6 of them were scarce of stores, and *I decided* to winter them in the cellar, so did nothing with them. When the day came to carry them in, the Chaddock family *vetoed* the cellar movement, and I was forced, for want of support, to let them *starve* on their summer stands. Then one of those that I had doubled up, died. They had plenty of stores, and just packed themselves in solid masses between the combs, and died there—not a hundred bees on the bottom-board. The hive was clean and dry, and so were the bees. I guess this was a visitation of Providence. Another one that had not been doubled up died (without any cause)—*just up and died*, and left most of its honey for me to give the living colonies. This leaves me 9, and what do I want with 9 colonies of bees, in a land where there is no honey? I'd feel richer by half, if I had not a single bee. I have been feeding them, on and off, all this spring. They are strong, just boiling over, but that is not a source of comfort. I can not see the sense of all this brood-rearing when there is to be no honey. And what I want to know is, "Am I going to be obliged to feed my bees all this summer and all next winter?" If I am, I think I shall begin to hunt around for somebody who will take bees *as a gift*. Here I am, feeding my bees on the third day of June. There is not a pound of honey, I do believe, in the nine hives. Yesterday I fed them fifty cents' worth of sugar, and to-morrow I shall examine them again. Other years there was honey-dew (sometimes) between the raspberry and white-clover bloom. This year there is nothing. White clover is the thing that we count on for honey here, with two or three days' work on the basswoods; and the white clover all dried up last year, and is very scarce as yet; but I see that the young plants are coming on now. There is not enough white clover in bloom now to make a solid half-acre within reach of my bees. Our pasture fields that were white with clover-blossoms in other years now show only a head here and there, sometimes rods apart. This has been a cool (or cold) dry spring, the clovers (nor any kind of grass) do not thrive well, but the crops are all doing well. Now, is not this a long-faced letter? And don't all of you who have read it feel worse than you did? **MAHALA B. CHADDOCK.**

"AM I TO FEED ALL SUMMER?"

"IT DOESN'T PAY."

"OTHER YEARS THERE WAS HONEY-DEW."

Vermont, Ill., June 3, 1888.

Now look here, Mrs. C. Suppose you give up your bees and give up your business. About the first thing you know, the next season we have will be favorable beyond any thing heretofore on record. The bees you give away will increase enormously, and perhaps your fortunate neighbor gets tons of honey. Everybody will be doing wonderful things, and you will be left out in the cold. This does not apply particularly to bee culture; but almost every year furnishes a wonderful crop of something or other; and almost every year also furnishes illustrations of those who gave up the business in disgust, just before the time came to reap a rich harvest. At the time of the oil excitement in Pennsylvania, a man drilled a well away down, down, until he got tired of it and gave it up. There the well stood for several years until somebody went to work at it; and by going just a very few feet further they had one of the largest-flowing wells on record; and we meet such things day after day. It is the ones who hold on persistently who win in the end. Why, in fact there is a Bible text to encourage us—"He that endureth to the end shall be saved." If there is not any thing to be done with the bees, go to work at your strawberries or other kinds of garden stuff. By all means, keep your bees from starving. Clean up your pitcher of syrup so the robbers will not be hanging around it. Keep your smoker and rotten wood in some dry place, out of the weather. Grind up your honey-knife (which we see sticking in your belt in one place and standing up straight in the ground in another); wipe the honey off from the handle, so it will be pleasant to get hold of when honey comes. Have every thing in good shape, and then attend to something else until Providence sees fit to reward you. And it is by no means certain that you will have to wait until next year for your honey crop, even if basswood and clover have both gone by. Our bees are now working on red clover, with a vim. In our locality it would not be any thing very strange if we should have section boxes filled with honey, as has happened several times in the last 20 years in our vicinity. If you had 200 or 300 hives to be fed through poor seasons, and were too poor to buy the sugar for them, you might look long-faced. No, I do not think that any of us shall feel worse than we did. It sometimes helps us to bear our trials when we know that others are having to shoulder like ones.

THE BASSWOOD BORER.

ALSO SOMETHING ABOUT THE BASSWOOD, OR LINDEN TREE, IN GENERAL, FROM PROF. COOK.

RECENTLY one of our boys found a very peculiar-looking beetle near the boiler-room, where a good deal of basswood sawdust, etc., accumulates. Feeling curious to know something about it, "his honor the bug," as it was called, was sent to Prof. Cook for identification. It seems the *bug* is a *beetle*, however, and an undesirable one too. By the way, will friend Cook give us the distinguishing earmarks between a bug and a beetle? Here is what he says:

Friend Root:—

"His honor the" beetle, not "bug," which you send is one of the few insects that attack our grand ornamental and most admirable honey-tree, the American linden, or basswood. It is the *Saperda vestita*, Say. This beetle is three-fourths of an inch long, greenish yellow in color, and, like all the family of borers to which it belongs (*Cerambycidæ*), is characterized by its slim trim appearance and long antennæ. Thus these beetles—all in the family—are called "longicorns," really long horns. This beetle lays its eggs on the lindens, and the grubs bore into the tree. Were they numerous enough they would do injury; but I think that is rarely the case. Thus our beautiful lindens are rarely injured, while our elms, maples, and locusts, are often ruined in great numbers by their insect-enemies. When I get to be an editor, which will probably not be till I cross the river, I shall urge the planting of lindens in extenso. The rage now is to plant elms and maples. The elms have two terrible enemies—canker worms and elm-leaf beetles, which latter bids fair to exterminate this beautiful shade-tree in the east. The maple is so badly attacked by borers that more that are transplanted by our waysides die than live. The linden, on the other hand, is almost insect-proof. I have never known a tree to be seriously injured. More than this, it is a grand tree, excelled in beauty by none, and a very valuable honey-tree. There is only one requisite to success in planting this tree: We must keep cattle and other stock away from it till it is well grown, as they appreciate the juicy foliage, and will not spare that tree. I urge, then, that all plant lindens and get your friends to go and do likewise. A. J. COOK.

Agricultural College, Mich.

Friend Cook, we shall be very glad indeed to see you an editor (providing it will not wear you out prematurely); but we are in no hurry at all to have you "cross the river," as you put it. We do hope, however, you will continue to urge the planting of linden-trees. GLEANINGS has had some pretty emphatic articles on the subject, and I have thought, for the past two weeks, that if the world at large could enjoy the sight of the row of lindens in front of our house and factory, there would certainly be more of them planted. In the cool of the evening, and when the sun first rises in the morning, the aroma is most beautiful. Sometimes I start out with a brown study, and look around me, wondering what it was that brought such a thrill of happiness all at once. Pretty soon I called to mind that it was this beautiful perfume of the open linden-blossoms, coupled with the merry hum of bees that are roaring about the branches, from daylight until dark. Yes, even when it rains, so eager have they been for the past few days that they were on the wing, reveling amid the leaves when our workmen thought it rained too hard to be out. Some have urged that basswood-trees are not as easy to make live as the elm and maple; and even our neighbors across the way have been planting elms in place of linden. I think I shall have to call their attention to the point you make, that elms and maples are more subject to insect-enemies.

KEEPING COMB HONEY.

A BRIGHT IDEA FROM C. C. MILLER.

AS a general rule, comb honey kept till it is a year old, or older, will not sell for as high a price as new honey. It is likely to be somewhat leaky, the combs cracked, and the honey candied. Yet I have seen very fine specimens of old honey. I was in the habit of sending some honey each year to my mother; and one time when visiting her she said, "Charles, you needn't send me any honey next fall, for I have plenty to last over."

"But," said I, "you must use up what you have, and let me send you some new. Comb honey is not so good kept over from one year to another."

She assured me that it was just as good, and showed me some that certainly was very nice; and when asked what she had done to keep it so nice she said she had done nothing; that it had kept that way itself. I asked her to let me see where she kept it, and she led the way up into the garret. A bee-keeper near Rockford showed me some honey that was 18 months old. Close inspection showed a little cracking of the comb away from the wood of the section; but I think not such as would cause leaking. At any rate there was no sign of leaking, and no cracks across the face of the comb. (Did you ever notice that sections cracked by freezing are generally cracked diagonally?) Upon being cut into, this honey showed no sign of granulation, but was very clear and very thick. There was no appearance of any impairment of flavor. On the contrary, it was unusually fine, there being perhaps the same difference between that and ordinary comb honey that there is between ordinary extracted honey and that which is extra thick and well ripened. This honey had also been kept in the garret. Now, what was the secret? Was it in the character of the honey or in the way in which it was kept? I suspect that the whole secret lay in the fact that the honey had been kept directly under the roof in an intensely hot place, giving it a thorough evaporating or *ripening*. Both lots of honey had been subjected to a very low temperature, probably much below zero at times. It is, I think, the common opinion that freezing injures honey and causes it to candy. Is the common opinion correct? Partly, I think. The effect of freezing upon different liquids is by no means the same. Perhaps I ought to say the effect of cold. If water freezes, when it thaws it is again water. If ink, such as was common years ago, freezes, upon thawing it is no longer ink, but a permanent change has taken place in its character, and it is worthless. If an apple freezes, when it thaws it is not the same as before; but a frozen *dried* apple, upon thawing, is just as good as ever. Now, in the process of drying, there must be a certain point reached when it is dry enough so that it will not rot, and so that freezing will not injure it. Is it not possible that somewhat the same thing holds true with regard to honey? May it not be dried down to such a point that a zero temperature will produce no change in its structure? I think it is a fact that comb honey is slower to granulate than extracted. Why? Because it is sealed up? Possibly, but I suspect there is a difference, aside from the sealing. We all know that most sealed honey will granulate if kept cold enough, and we know that some extracted honey granulates more slowly than some sealed comb honey. Evidently the sealing does not make all the difference. You remember, Mr. Root told us about some very fine extracted honey which never granulated, although subjected to a very low temperature, but remained remarkably transparent at all times. Is it not possible that the only peculiarity about that honey was that it was thoroughly dried down, evaporated—ripened, if you please?

Don't understand me as saying that I *know* about it, but I suspect that the principal secret of keeping either comb or extracted honey consists in drying it sufficiently, so that, if enough water be in the honey, upon reaching a sufficiently low temperature the water will separate from the honey, and crystallize, leaving the sugary parts to become solid; whereas if the water present be in sufficiently small quantity, no such change will take place. But to have the honey in right condition for keeping, I think it must be dried before any injurious action has taken place. I have kept extracted honey in a garret where, on a hot summer day, the heat was insufferable; and upon the advent of cold weather it granulated. Perhaps that was because it was closely tied in stone crocks which prevented evaporation. All that I have said agrees with Doolittle in strongly advocating the keeping of honey in a building affected by the heat of the sun, with plenty of chance for evaporation. At the risk of disagreeing with some good authorities, I have some doubts about honey ripening any better in the hive than out—at least, the last part of the ripening. I suspect it is evaporation, pure and simple, that ripens honey, and that would be the same whether done by bees or by other means.

Marengo, Ill. C. C. MILLER.

There, old friend, you struck the nail on the head exactly, I do believe. Why, we shall have to call *you* a scientist too, if you don't stop showing so much depth of research. It never occurred to me before, but I do remember now that the white-sage honey and the alsike honey that never candied were ripened so as to be very thick indeed; and the alsike that we have made such a fuss about, furnished by friend Goodrich, was ripened by artificial means, heating it just as hot as it would bear, without injuring the comb and flavor. Now, then, to your point—getting rid of the water by evaporation, so as to enable fruit, honey, and other things to stand a zero temperature without injury. In sugar-making, when the contents of the crocks or tin pails is frozen almost solid, in the bottom of the pail or in the center of the block of ice will be found a small quantity of syrup, so thick and sweet that it will not freeze. In fact, no ordinary temperature will freeze it, when it becomes sufficiently thick; and this maple syrup, reduced by severe cold instead of heat, is frequently as light-colored as honey, and of most delicious flavor. G. M. Doolittle has long urged the importance of ripening comb honey so the unsealed cells will not drip or daub. This same ripening will prevent injury from freezing, and very likely do away with this disagreeable matter of candying in the comb. If practice sustains this theory, we shall owe you a vote of thanks, old friend.

GRAPEVINE FLEA-BEETLE.

HOW TO DESTROY THEM.

THE dark-brown grubs, or larvæ, sent by Mr. J. J. McCoy, Mt. Erie, Ill., are well known to me, and this year must be very common and destructive, as I hear of them as serious pests from several States. They are flea-beetles, *Haltica chalybea*. The beautiful small blue beetle comes just as the buds are swelling, and often do very serious harm by eating the buds. When approached they jump like a locust, or flea, and hence the generic name, *Haltica*, and the common name, flea-beetle. These beetles can be killed easily and cheaply by spraying with London purple. The beetles lay their orange eggs on the young leaves or twigs and stems; and when the little six-footed grubs come forth they take ravenously to the foliage, and, as Mr. McCoy says, do terrible injury. These skeletonize the leaves. These can also be killed by use of the arsenites, and we have found the kerosene and soap mixture, which I recommend to destroy plant-lice, also effective.

Agricultural College, Mich. A. J. COOK.

Friend Cook, I had always supposed that

the little black jumping insect found on radishes, cabbages, turnips, and all that family, especially when they first come out of the ground, was called a flea beetle; but if it is a mistake, I want to be corrected. They look like a flea, though they are larger, and their inveterate habit of jumping whenever they are approached gives good reasons for calling them fleas. I believe they are sometimes called the cabbage and turnip flea. The insect you describe I suppose is something else, for I never heard of them on grapevines.

THE GREAT TRACTS OF BASSWOOD TIMBER NEAR ITHACA, WIS.

FRIEND FREEBORN TELLS US ABOUT THEM.

DEAR SIR:—Replying to your request in GLEANINGS, some time ago, I will say that there are no large bee-keepers near the land under consideration, that are near enough to be rivals should you locate bees there. The bee-pasturage has been quite well tried in the same range of timber, though by few if any real experts. Since writing you before, I have had a letter from a party who took 10,000 lbs. of basswood last season from 80 colonies. He was located a few miles north of the 13 parties; 125 lbs. was a big average for last year.

I supposed of course that, in the purchase of land, you would want to see the condition of what you were buying, in all its bearings. Should you, on mature deliberation, conclude to personally inspect, I will furnish a good team and myself as driver, to take you to this tract, and perhaps some others, that you may decide upon their respective merits. I have no pecuniary interest in the sale of the land in question; but, as I wrote you before, I have thought of doing something of the kind myself had I the means to spare to do so. At the present rate of destruction, the basswood timber and honey will both be scarce. The timber is used extensively, and many consider the honey the finest in the world.

From what I read, and my own observation, I think that basswood yields honey more constantly and better here than in any other State unless it be Michigan. Another idea of mine is, that you can hardly overstock a good basswood location in a good season, and, like Napoleon, you could have a large force on hand at the right time.

C. C. Miller's son, Charley, worked for me last season. He informed me that C. C. Miller's only honey source was white clover. I advised him to get his father to ship his bees to timber, and I think it would have paid him to do so, though it proved to be one of our poorest seasons for 30 years.

I shall be glad to serve you in any way that you wish or may indicate, as I feel that GLEANINGS has been a benefit to me financially and spiritually.

Ithaca, Wis. S. I. FREEBORN.

Friend F., I am exceedingly obliged to you for your kind offer, and I should like no better fun than to accept it; but many other duties stand in the way of it at present. I do believe the investment would be a safe one for the basswood timber alone, to say nothing about the honey resources. Perhaps some of our readers may see fit to test the honey-flow of these orchards of natural basswood. One could move some bees into the vicinity, without investing or even locating permanently, in order to test the honey-flow. One hundred and twenty-five pounds to the colony is a big yield any year, for so large an apiary as 80 colonies.

SHALL WE ATTEND AGRICULTURAL FAIRS?

AND SHALL WE TAKE TIME TO MAKE AN EXHIBIT OF THE PRODUCTS OF OUR OWN INDUSTRY?

AGRICULTURAL fairs set in motion the best elements of farm life, and stir up the ambition of those interested, and all *are* interested in the success of the undertaking. It is an advertisement for the community and for persons interested; and if the display is good it gives a good reputation to the exhibitor.

"Like other productive industries, bee-keeping is not exempt from uncertainties as to results, and few things bring to the bee-keeper so many pleasant and profitable things as does a display of bees, honey, and apiarian appliances," at the annual and other State, county, and district fairs and expositions. Wherever such an exhibit is made it is a nucleus around which bee-keepers gather, and in a quiet, pleasant, and profitable way exchange ideas and discuss matters "new and old." An incident at the Tri-State Fair held here two years ago made a more lasting impression on me than hours of ordinary talking or pages of reading-matter might have done. An elderly farmer, some would have called him an "old codger," wanted to buy some bees of me. We talked over prices, etc., and I thought a bargain was about made, when he asked me if I used the extractor. When I told him I did, it would have done any melancholy dyspeptic good to see the expression of disgust that spread over his face as he said, "I don't want any of *your* bees." Strange as it may seem, I had to laugh in spite of all my efforts to the contrary, and I saw that this oracle knew that the extractor is responsible for the great winter mortality among bees, for he afterward told me so. I believe he tried to purchase bees of every bee-keeper there, and with the same result.

If there is a business that requires a man who can express in his face, at one and the same time, disgust, contempt, and anywhere from ten to ten thousand other kinds of expressions, I would most earnestly recommend that gentleman as the best-qualified man to run that business that I ever met.

These exhibits aid us in our efforts to popularize the use of honey as food and medicine. They will also help to raise the standard of excellence, both quality and attractiveness of the honey put upon the market. New ideas will be disseminated, new methods will be learned, and old ones discarded.

Bees and honey are always great attractions at fairs; and to hear the "fat" expressions and quaint sayings of "smart" country people and city "dudenes" is enough to add years of happy life to the average age of those who enjoy such things. To listen to fond papas and doting mammas as they explain to their children, who are all eyes and ears at such times, the mysteries of the hive, and how the bees "make honey" while they are shut in the hive at the fair, and how a honey-extractor works either as a washing-machine, an ice-cream freezer, or a churn, will cause a change in the facial expression of such stoics as Mr. Hutchinson and a score or more others whom I might name, but space forbids; and such matter-of-fact men as our friend A. I. Root gather new enthusiasm and energy from such displays of sweetness, and the consequent contact with wise and *other*wise people.

I have never seen our friends D. A. Jones, Rev. W. F. Clarke, or the sober ex-president of the Ontario Bee-Association, H. T. Pettit, at such shows, and I fear that I might not recognize either at such a place, for they would probably be so pleased and elated over the great growth and success of bee and honey shows that their best friends would have to look twice to make sure of their identity. I don't care to aid in getting up displays of honey, etc., for the purpose of inducing people to engage in this, to some, pleasant and lucrative employment, but do it for the same purpose the manufacturers, merchants, and other business men show their goods—to advertise, work up a market, and sell the products of the business.

The premium-lists of the fairs are generally made up during the first two or three months of the year; and unless some one or more bee-keepers in the locality see to it, it is more than probable that no premiums will be offered for the displays of the products of the apiary. It may not be too late now to have the matter arranged in many localities, even if the premium-list has been made up, if the proper officers (president or secretary) are spoken to at once. Don't get the premiums too high to start on, but work them up gradually each year as the display becomes larger and more attractive. As a rule, the matter is not thought of by those who make up the list.

The first year I lived here, the premium offered by the Tri-State Fair was five dollars "for the best show of honey." I found the "show" set away on a high shelf among other things, and where it was seen by but few. It consisted of a rough box, holding about twenty pounds of comb honey, with glass in one end of the box. I spoke to the officers of the society about the matter, and the result was the offering of over $100 the next year as premiums, and the next year $208. For six years the Bee and Honey Department has been a "fixture," and, like other departments, has a superintendent, etc.; and last fall it was said to be "the most attractive exhibit on the grounds." The exhibit in 1882 was small compared to what it has since become, and was described in the *American Bee Journal* by the editor, who assisted in awarding the premiums, as a "grand success. The small corner set apart for the bee and honey show was so crammed all the time that it was with great difficulty any one could get through the crowd, and utterly impossible for many who desired to examine the exhibits to even get within a stone's throw of them."

I want to say a few kind words about friend T. G. Newman. When we first started out to make an exhibition of honey, etc., at the Tri-State Fair in 1882 and also in 1883, he kindly consented to help us, and came from Chicago to Toledo and spent three days each year, without "fee or reward," in aiding in judging, and starting us off in good shape. A. I. Root and C. F. Muth and others helped us in 1883, and we have tried each year to improve on the previous one.

The exhibit at the St. Joseph, Mo., fair has become one of its most attractive features; and for five or six years past the Michigan bee-keepers have made a large and attractive display at their State Fair, and have a separate building for their exhibit, and the premium-list was gradually worked up by Mr. Cutting, Prof. Cook, and others, from next to nothing to over $300. At Toronto, Canada, have been made some of the largest (if not *the* largest) and most attractive exhibitions of honey and apiarian appliances ever made on this continent.

I believe honey should be made the main attraction. A display of bees and queens is always "in order," and calls forth more quaint and original expressions from the crowd of sight-seers than even the extractor does. Many an old "residenter" has taken pains to put on the second pair of eyes to see "the king-bee who bosses all the other bees, and tells them what to do," and then, after being told it is a queen, and the mother of the bees, hurries off to hunt up some friend or member of the family to show them "the mother of all the bees."

Supplies are viewed with curiosity; but honey, that "sweetest of sweets, excepting the lasses we all love to greet," is the great attraction, and creates a desire to *taste* that which to many is so irresistible that a purchase has to be made before the visitor is satisfied, and then, when leaving, frequently turns and casts longing glances at the tempting display of luscious sweetness.

The skill displayed in making honey exhibits in some of the countries of Europe is so great, and the display so attractive, that it is not a rare thing to have them visited by common people, as well as by kings and queens; and it is largely the fault of the bee-keepers themselves if like attractive and instructive displays are not made at the different fairs throughout this country; and I have yet to learn that the managers of any fair have regretted having done what they could to call forth an exhibit of honey, but all have been surprised at the beauty and attractiveness of a well-prepared display.

The Stark Co., O., Ag'l Society, at the solicitation of the Stark Co. Bee-Keeper's Society, last year appropriated $100, to be given as premiums for bees and honey, etc., and $150 for the erection of a building for the display of things pertaining to the apiary.

If all county and State agricultural societies can not be induced to give fair premiums for the products of the apiary, without doubt enough can be secured to more than pay expenses; but some one or more bee-keepers must look after the matter, and be sure that it is attended to. It will *not* take care of itself.

The exhibition of bees on the wing at fairs crowded with people has not usually proved to be much of a success. The candy and fruit men are frequently annoyed by bees from the neighborhood, and it is always laid to the bees on exhibition, when, in fact, every bee is confined to its hive.

The question with us all very properly arises, "Does it pay to be to all this expense and trouble?" The same question very naturally arises, also, in regard to any kind of an exhibit at fairs, and each will have to answer the question for himself.

On page 221 of GLEANINGS for 1887, J. H. Martin puts this matter before us very nicely. He says, "Does it *pay* to spend time and money to advertise the honey-business? If we look around us, we see every trade making strenuous efforts to get ahead. Take up the most obscure county paper, and every trade is represented in its columns. Our most successful merchants are the ones who 'catch on' to every advertising novelty to be used in the extension of their business. Our fairs are the red-hot centers of attraction and advertising, through all lines of business, with the exception, perhaps, of bee-keeping.

"Probably the hardest thing for a spirited bee-keeper to bear, at the present time, is the general belief that bee-keeping is a small business, and that any ninny who knows just enough to chew gum can successfully produce honey; and bee-keepers, as a rule, are following a course of action to confirm people in that belief; for if a business is not worth a little advertising effort, it is not much of a business."

It seems to me that a few bee-keepers in each county where honey is produced can make it *pay* to be to the necessary expense and trouble of making a nice and attractive exhibit. To be sure, it has to be "mixed with taste and brains," and that is just what every successful bee-keeper, or his wife, has a supply of. See that the premiums are enough *to pay expenses* (which need not be heavy), and trust to sales, etc., for the "net proceeds."

One thing has been fully demonstrated by the exhibits of honey at fairs, and that is, that bee-keeping is fully abreast of other productive industries; and, when compared with some, is much ahead in attractiveness and value.

The coming honey exhibition at the Ohio Centennial Exposition at Columbus, from the 4th of next Sept. to the 19th of Oct., is not to be made just for the money there is in it, but to show the progress in bee culture during the last hundred years; and it is hoped that it will be the largest and most attractive that has ever been held in this country; and, so far as I know, those engaged in the matter have the vim and push to do credit to the fraternity. Just think of a building 36 x 80 filled with the luscious God-given sweet! I have seen tons of honey piled up at fairs that did not make as much show as one-fourth the amount might have been made to do.

Now, friend Root, you need not add a lot of such comments to this as will knock what I have said into a "cocked hat," and make me feel like crawling into a hole and "pulling the hole in after me." If you do, I have got a settler for you "in my mind."

Auburndale, O., July 9, 1888. A. B. MASON.

Now, look here, Dr. Mason, you have written a tiptop article; in fact, it woke me up to a great deal of enthusiasm until I came to your concluding sentence, but I think that is entirely uncalled for. I never added any comment to any thing you ever wrote, that I know of, that did any thing like what you say; and on this matter of fairs, premiums, etc., where you are perfectly at home, how could I, even if I tried ever so hard, take the wind out of any of your sails. I should very much like to know, however, what that "settler" is. Never mind; I have not quite got over my enthusiasm about having everybody in the world get acquainted with everybody else in the world, so far as may be; and there is no place in the world that offers any thing like the facilities for getting acquainted, as do our agricultural fairs and honey shows. Why, you do not need even an introduction, to be enabled to talk familiarly with the best men and best women our land affords, while you are on the fairgrounds; and the wonderful thing about it is, that even the most obscure individual finds he has something to communicate that is really valuable to the masses. Will it pay? Just one illustration: It was at the Ohio State Fair that I first caught sight of the beautiful wheelbarrows we have been furnishing our friends for the past year or two. I had long thought about such a wheelbarrow, and had day-dreams of how one might be made of basswood and steel, planned by some master mind that knew how to get the greatest possible strength with the very least possible material. It was at the Ohio State Fair that I first caught a glimpse of my ideal wheelbarrow. I just stood and looked at it. Then I got acquainted with the man who had it in charge. He knew all about wheelbarrows, but he did not know a thing about bees or bee-men. I do not know to what extent the trade has grown, but I will just add that our last order for wheelbarrows was for an even 500 at one clip. Now, had I remained at home, as lots of us do stay at home, I should not have had that wheelbarrow yet, in all probability; and, my friends, you would not have had one either—surely not so good a one. By all means, go to the fair, and go fully determined to *do* good as well as to *get* good. If you love your fellow-men as the Bible enjoins you to do, you must go to fairs. If there are bad men at your fairs, and bad things going on, why, that is all the greater reason you should go and help crowd out the bad. And don't forget the 100th birthday of our beautiful State of Ohio. Even if you do not live in Ohio, you should be glad to make us a neighborly visit about the time the national convention meets. Let us have the greatest national convention the world has ever seen. Ohio is centrally located, and Ohio is pretty well along in intelligence, temperance, and righteousness. Come and meet with us, and we will do you good. Dr. Mason and I will be there to welcome you, even if nobody else goes, and we will show you there is room for all, and plenty of opportunities for all to lend a helping hand.

THE BLACK BEE AN IMPORTED INSECT.

PROF. COOK TELLS US THEY WERE NOT HERE BEFORE THE WHITE MAN CAME.

A SUBSCRIBER from Independence, W. Va., wishes to know if the common black bee was found here when America was discovered. I think we may answer unhesitatingly that it was not. In the first place, tradition says it was introduced from Europe. Again, it is identical with the German, or black bee, which would not have been the case if it had been a distinct or American species. Further, the Indians knew bees as "white man's flies," which clearly indicates that white men brought them to America. Lastly, they were not in the far West till within the memory of man, which would not have been true if they had been native to our continent. We know from their nature that they would have spread all over the hemisphere, even to California. A. J. COOK.

Agricultural College, Mich.

We are very much obliged indeed, friend Cook, for what you tell us. I know it has been said that the honey-bees came with the white man; but it seems a little strange that honey-producing flowers should have existed in such great profusion, especially our basswood forests, with no bees to gather the nectar. I suppose, of course, that bumble-bees were here; but they will take but a very small fraction of the honey produced, and wasting its sweets on the air. I presume the stingless bees of South America, and other bees found there now, existed here before Columbus came over. And this brings us to a question in regard to the islands of the sea: Were there probably no bees on any of them until they were carried from the Old World? Who can tell us?

A GLIMPSE OF AN APIARY AWAY DOWN IN VERMONT.

THE PLACE WHERE FRIEND LARRABEE ENJOYS HIMSELF WITH HIS BEES.

FRIEND ROOT:—Knowing your time is limited, I will write briefly. I send a photo of my bee-yard. It contains at present 137 hives. I began keeping bees (as a study and business) 5 years ago, and have built up this yard in that time from 8 stocks, the bees paying their own way.

SUNNYSIDE APIARY.

I am 25 years old, and, tiring of teaching school, I determined to get out of doors more. In bee-keeping I find a fascinating and fairly remunerative pursuit. J. H. LARRABEE.

Larrabee's Point, Vt., June 18, 1888.

So, friend L., you gave up teaching, went out of doors, and tried bee-keeping. After having been tied down to a schoolroom, I can readily imagine that you find the pursuit fascinating, and am glad to know that you find it fairly remunerative. We have had the picture made thus diminutive, in order to see how much of a glimpse could be had from so small a picture. Your hives are arranged, as it would seem, in two apiaries, or is it only a roadway that separates them—a part on the right hand and a part on the left? The little grove that shades one portion looks cool and shady. There is something wonderfully fascinating about hives of bees under shady trees, especially if weeds, rubbish, etc., are all kept carefully out of the way and out of sight.

RAMBLE NO. 4.

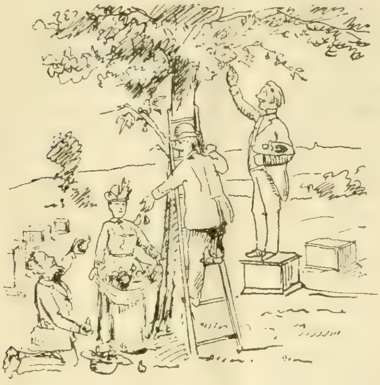
TO THE HOMES OF OTHER BEE-KEEPERS DWELLING IN SINGLE-BLESSEDNESS.

As we made it a point to make close connections with every meal during our tour, the welcome call to breakfast found us ready for the occasion. The president was also unusually prompt to remind one that this exercise must be attended to. After a due and satisfactory indulgence in the substantials always found in the Parents' larder, we gave the new horse-barn a unanimous examination. We were the more interested in it when we learned it was mainly the work of the P. brothers, and we suspect the bee-man had much to do with it; and if bee-keeping makes or engenders laziness, as some have remarked, the laziness hasn't reached this farm, for it is evident there are but few idle moments here.

We next adjourned to the bee-yard, and aided the proprietor to form a nucleus for raising exhibition queen-cells.

The premiums paid at the Saratoga Co. Fair are for the best races of bees—Italians, Holy Land, blacks, etc., in observatory hives; also a nucleus with the greatest number of queen-cells. A brood-comb, full size L., is prepared, *a la* Alley, and Holy-Land bees are set to work to build the cells; and for exhibition purposes they do their work remarkably well, usually giving a row of large cells the whole length of the comb; and when two or more bee-keepers compete for the prizes with many observatory hives, pyramids of beautiful honey, and bee-keepers' supplies, the display is quite brilliant and attractive, and usually results in the sale of more or less honey.

Mr. Parent's tools are much the same as you will find in any well-regulated apiary. His bees are successfully wintered in a double-walled bee-house, which also answers for an extracting-room in the summer. We found Mr. Parent's apiary as orderly and unstickable as perhaps our own and many others we had been through. We tried not to distress him with our criticism, but he evidently considered us an affliction, and proposed to turn us loose upon some of his neighbors. With our genial host as guide, we were soon partaking of luscious pears and grapes at the residence of a lady bee-keeper in the eastern suburbs of the thriving village of Charlton. Miss Hattie Heaton is the proprietor of a beautiful apiary of about 50 colonies. The hives were shaded by fruit-laden pear and plum trees, and well-kept grapevines, the fruits of which we had just had a foretaste. Some hives seemed to be embowered in rose-bushes, while an extensive and well-kept flower-garden filled the air with fragrance. Birds were sweetly singing, bees quietly humming, and the musical tones of the fair young proprietor as she explained her methods of management all combined to throw an irresistible charm around the apiary and—the mistress. Miss Heaton's brother, who was then away with a load of fruit, made a specialty of fine fruit, and his customers were willing to pay a good price for his selected products. In his journeys with fruit he also secured customers for Miss H.'s fine comb honey at good prices. Miss H. does nearly all of the work in her apiary, except lifting and carrying heavy hives. This devolved upon the brother, who seemed to be a very handy man to have around. To sum up Miss H.'s estimate of the pursuit of bee-keeping, she found both pleasure, health, and profit in the occupation. We found the surroundings so delightful, and the fruit so fine, that we unconsciously formed ourselves into a fruit-committee, not only for the sampling but the gathering of fruit, as will be seen by the loaded apron in the sketch.



COMMITTEE OF THE WHOLE, ON FRUIT.

But as time and tide wait for no man, we literally tore ourselves away from this charming apiary, and, bidding our fair hostess and her mother adieu, we were again on the road, and were soon before the home of the Crane Bros., on the western borders of Charlton. We found one of the brothers, W. J. Crane, at home, and we immediately adjourned to the apiary. Mr. C. had 25 colonies of especially fine Italians. Many of them were bred from a Doolittle queen. He assured us that they were a very mild strain; but a prod on the Rambler's ear, and another on J. I.'s neck, gave us decided opinions to the contrary. The president lectured us upon our undignified appearance, and coolly stood near the hive. His courage, however, was of an artificial nature, as his ever-present veil was over his face. Mr. Crane's apiary was located beneath a group of noble maples, giving, we thought, too much shade for the highest profit; but Mr. C. gave a very good showing for both comb and extracted honey. We had but a few minutes to spend with Mr. C., and found that himself and brothers, like the Parent Bros., were living in single-blessedness also; and as we cast our eyes over the well-kept lawn, the buildings, and the farm, we were impressed with the fact that the C. brothers had adopted a high standard of excellence, for the attainment of which they were working.

How often, in an extended ride through the country, we come to just such neighborhoods as this! We know from the looks of the farms and the people that it is a "peaceable street." The farms are models of neatness. If there are many fences, as there are usually in the East, they are substantially built, and are free from hedge rows of briers and elders, and there is scarcely a noxious weed to be seen in the well-kept fields. The cattle and all farm stock look well fed, contented, and happy, and of the most improved grades. The buildings are commodious, well painted, and have all of the modern improvements. As a general thing, lawsuits are not bred in such neighborhoods. If the moral standard is equal to the material, there is nothing to make lawsuits from. That every reader of this will make his standard in all things a little higher, is the wish of the RAMBLER.

Friend R., we suppose the happy-looking chap on top of the bee-hive, with his hat full of fruit, must be yourself. From the look of his countenance we judge he certainly must be having a good time. We suppose the other fellow on his knees, picking up pears, is the president. Who would not like to visit bee-keepers, if that is the way they are treated? Now, I wonder if it never occurred to your bachelor friends that even a weed in the garden itself would not have amounted to very much without the companionship of womankind. Men and women can have a good time in raising fruit and in raising bees, each one off alone; but I am sure they can have a hundred times more enjoyment in the kind of partnership that God designed from the beginning of the world. I suppose it is not a sin to live in single-blessedness; but I do think it is one of the saddest blunders that ever a man made, and I am quite sure that my wife thinks as I do about it. The union, however, to reap the full rich experience planned by the Creator, should be a union also with Christ Jesus. Such a union, with God's blessing, neither man nor aught else in this wide universe could put asunder, even if it tried. Bees, fruit, flowers, with good men and women to enjoy and appreciate them—can any thing furnish a better or happier picture?

THE ABBOT SPHINX.

NOT POISONOUS.

FRIEND ROOT:—I send you a worm to-day that Mrs. Crommie got from one of our vines. Is it poisonous, and what harm can it do? When you hit it, it makes a noise like winding a watch. Perhaps friend Cook can tell us something about it. W. CROMMIE.

Cobleskill, N. Y., July 6, 1888.

Prof. Cook replies:

The fine beautiful caterpillar sent by Mr. W. Crommie is the larva of one of our beautiful sphinx moths, *Thyreus Abbotii*. This moth is rare, but is found over the whole country. The beautiful moth comes in May, and lays its eggs on the grape. It expands 2½ inches. It is brown in color, striped with darker brown, while the hind wings are yellow, bordered with brown. The caterpillar is mottled with yellow, brown, and black; while on the back, near the end of the body, is a polished black spot, or tubercle. This larva is full grown about August 1, when it is full 2½ inches long. This insect, like all the species of this family—*Sphingidæ*—pupates in an earthen cocoon, just beneath the surface of the earth.

As will be seen, this moth is one of the interesting humming-bird moths, and so related to the tomato sphinx, the beautiful larva of which—yes, I mean just that—is often found feeding on the tomato. The moths are generally crepuscular, or twilight flyers, though some, like the Abbot sphinx, fly in the hot sunshine. They have large tapering bodies and very long tongues. Their wings are long and narrow, and they fly with exceeding swiftness. The larvæ all have either a wart, tubercle, or horn, on the back at the tip of the body. It is often stated that this caudal horn, which all have seen on the tomato larva, is a dangerous organ—that it is used as a stinging weapon, and is quickly fatal. This is sheer nonsense, as nothing is more harmless than this insect. Let me say that all larvæ, if we except two or three species of caterpillars with tufts of spinous hairs, are utterly without power to harm us. These two or three will irritate, when handled, about as will a nettle. One of these, the saddle-back caterpillar, was illustrated in GLEANINGS of last year. These are so beautiful that it is worth while to examine them, even if we do perchance get stung a little. So Mrs. Crommie need not fear poison from any of these so-called "worms." A. J. COOK.

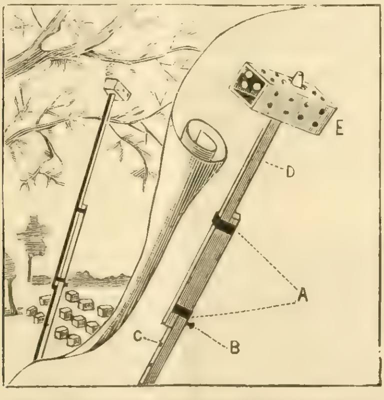
Agricultural College, Mich.

But, friend Cook, you have not told us any thing about the noise like the winding of a watch, that the worm makes when you hit it. This question may not properly come within the bounds of entomology; but many of us are Yankee enough to want to know all about it. Does the insect do it to frighten away his enemies, or to warn intruders, as the rattlesnake does?

ANOTHER SWARMING-ARRANGEMENT.

THE SHEPARD DEVICE MODIFIED.

AFTER seeing Mr. Pierce's rig in GLEANINGS for June 1st, I am moved to describe mine, which I think is more convenient and simple than his. Instead of having several poles of different lengths, I have one adjustable pole. You will notice there are two poles with bands of strap or hoop iron around both, fastened to bottom of pole D, the other fastened to the top of the lower one. The upper, or box pole, can be slid up or down, making any length desired to reach the swarm. My poles are 10 and 11 ft. long, and 1¼ in. square. Pine or basswood makes nice poles for the purpose.



WILLIAMSON'S SWARMING-APPARATUS.

The box is held at the desired height by simply sticking a nail (B) in the holes (C) made 8 in. apart in the lower pole. When the bees begin to settle I slip my box up to them and give the limb a quick jerk with a hook-pole (made for the purpose), which lands the bees, or part of them, into the mouth of the box. I then lean the rig against a neighboring limb, go and prepare a hive while they are settling, then return and lower my box to "half-mast," and carry them and pour them in front of my hive.

This is my invention, and I honestly believe it to be the cheapest and best thing out for the purpose. I have been using it for two years, and it is a success, sure. A. C. WILLIAMSON.

Friendly, W. Va., June 18, 1888.

OPEN-SIDE SECTIONS.

SOME OF THE OBJECTIONS TO THEIR USE, AS WELL AS THINGS IN THEIR FAVOR.

THE idea is cherished by a large number of bee-keepers, that bees will store more honey in a large box than in several small ones that collectively have the same capacity. When the old boxes weighing from five to ten pounds were replaced by the two-pound "prize box," and still more when this was superseded by the pound section, the cry was heard that honey would be lost by compelling the bees to work in such small boxes. Bee-keepers of considerable experience went so far as to say that they could get a half more honey in two-pound sections than in those holding only a pound.

At the present time this idea has almost gone out among our largest honey-producers, and most of them will be ready to affirm that they can get as much comb honey in pound sections as in any other shape. There are many, though, who hold that the sections should be so arranged as to form one large box, as nearly as possible, else the bees, not finding things to their liking, will be loth to begin work in such contracted quarters, and the advocates of open-side sections use this as an argument in their favor.

In most supers, each lateral row of sections may be looked upon as a box by itself. Your "combined crate," for instance, is really composed of four sectional boxes, 4¼×4¼×14, with no communication between. These boxes, they tell us, are so small that the bees hesitate to begin work in them. Now, my experience has been exactly the other way. Bees would begin work sooner in supers of this class (I never used the combined crate) than in supers like Heddon's or the T super, which have a bee-space over the sections, making the super much more like one box, so that, in getting bees started in the Heddon super, I have sometimes found it an advantage to lay a cloth over the sections instead of the board cover, thus doing away with communication at the top, until the bees were well started.

The reason they started better in these comparatively small boxes seemed plain to me. In them the heat necessary for profitable comb-building could be more easily maintained, and the small force of wax-workers was just suited with this condition of things. Besides, the bee is a canny creature, and judges of the future by the present. If honey is coming in but slowly she will much sooner undertake to fill a small box than a large one. In the fall, too, bees will often continue work in a small super when they will desert entirely a large open one. During a good honey-flow in warm weather, a strong colony cares little if any about the arrangement of the surplus apartment; but at the beginning and close of the season I am convinced, for the reason I have given, that it is an advantage to have the super divided up into compartments, provided, of course, they are not unreasonably small.

Some of the disadvantages of side-opening sections are that they are not well adapted to the use of separators; that it is difficult to put them into any supers except those in which the sections are closed up by a follower or some similar device; the ends of wide frames and cases are propolized where the opening comes, making it difficult to remove the sections. One-fourth of all the side openings are thus worse than useless. These sections are much harder to clean of propolis, which also is bestowed on them much more liberally than on the ordinary style. For this reason, too, they do not look as well when finished, aside from their awkward appearance, even when new. It is more difficult to put them into shipping-crates, as it was to put them into supers; and I should expect damage to result from this when they are examined by buyers or commission men. The corners are quite easily broken off, making the sections narrower, and so too loose, in the shipping-crate. In this way as in others, honey in these sections is more liable to be damaged on the way from the hive to the consumer's table. The sole advantage that I can see in their use is, that they are somewhat better adapted to use without separators; but as I do not think it profitable or desirable to dispense with separators, I do not think this amounts to much. The naughty corner is doubly capable of mischief in these sections.

The claim, that combs are better built out and attached to the wood, is not supported by experiment. Besides, with proper management, closed-side sections may be had completely filled, and attached to the wood on all sides.

Dayton, Ill., June 22, 1888. James A. Green.

CELLAR VERSUS OUTDOOR WINTERING.

ARE CHAFF HIVES A LABOR-SAVING INSTITUTION?

THE bees we put in the cellar Nov. 16th wintered better than those put in in December, and this has been our experience in years past. Of those wintered in cellar, the queens live longer, and are not superseded so often as those out of doors. But were I to handle an apiary alone, with only hired help to depend upon, without my husband's management, I would keep my bees in a chaff hive larger than for cellar wintering, and leave them out of doors all winter, protected by a high board fence on two or three sides. It takes a good deal of time and labor to take 100 colonies, more or less, into a cellar and care for them by watching the temperature all winter, and putting them again on summer stands in spring, and righting up after the changes both fall and spring. It looks as if a cyclone had passed through the apiary when bees are taken from yard to cellar in the fall — an empty hive here and there, and alighting-board and covers scattered all over, needing to be picked up. We can't always get help that can carry bees from the cellar. One spring, I remember I had quite a time. Mr. Axtell was unexpectedly called away to a sick-bed, and was gone a week. A warm spell of weather came on. Our hand was willing to do all he could; but as our bees are packed in chaff hives (not so large as those we winter out of doors) he could not carry them alone, and the neighbors were afraid to help handle them, but finally volunteered assistance. Inexperienced help for such work, however, angered the bees by jarring them, and so caused more stings.

June 30, yesterday, was a beautiful day, clear and warm. The bees worked with a vim, and three swarms came out. On going through several hives I found them all getting ready to swarm but one; so if we do get suitable weather we shall have honey yet, as bees seem to know better when to swarm than we do, and never or seldom swarm when there is no honey to follow. We do not wish increase, so we have of late years taken out from two to four combs of their brood, and put in empty combs on frames with the other three, making seven. We then hive the swarm back, giving them the case of sections also, if they persist in swarming. If they swarm two or three times, we kill the old queen, because the bees are dissatisfied with her and will do nothing until they raise a young one.

SHALL COMB HONEY BE FUMIGATED TO KEEP OUT WORMS? HOW TO PREPARE IT FOR MARKET.

I notice the question is asked in one of our bee-journals, "Should comb honey be smoked with sulphur before going to market?" The answer was to always do so. Now, we have never smoked ours, and we have never had a word of complaint. One year we shipped 30,000 lbs. to Chicago, and have been shipping to Chicago and elsewhere, and not a word of complaint of worms. We always correspond with our commission men. They would have been free to tell us if there had been any worms. Mr. Axtell has visited Chicago, and looked after the honey as it was upon the market. He never saw worms, nor evidence of worms, and we have friends in Chicago whom we have often asked to look after the honey. There never was a report of worms. Then why go to the trouble of fumigating it? I don't believe we are bothered with the moth here in the West so much as elsewhere. No boxes of beeswax or scraps should be allowed to be sitting in the room where the comb honey is stored, or brood-combs where the moth is at work. The room should be perfectly free from moths, spiders, and every thing else of that kind. The honey should be made clean before shipping, and we shall then have no trouble from moths in our honey. The room should be darkened, also, to keep out flies, as they will find their way in through bee-escapes if the room is light.

BEE-ESCAPES.

We find it quite a necessity to have a bee-escape from our kitchen-window—the window where bees most naturally fly to. When coming from work with bees, one often carries a few in with him.

Our bees are very gentle, considering the rapid way I always have to handle them, because I can not stand on my feet long at a time. I have the whole 115 colonies at home to manipulate and wholly care for, with the help of a young inexperienced Swedish girl who thinks she knows as much about bees as I do. Mr. Axtell has another apiary from home which he cares for. Mrs. L. C. Axtell.

Roseville, Warren Co., Ill.

Mrs. A., I agree with you exactly in regard to chaff hives and outdoor wintering, and also in regard to fumigating comb honey; but I think the reason why we are not troubled with moth worms as we were years ago is because we use Italian bees; and I think this thing alone, if there were no other reason why we should keep Italians instead of blacks, would be a sufficient one.

HEADS OF GRAIN

FROM DIFFERENT FIELDS.

TWO QUEENS IN A HIVE.

CAN you tell me how there happened to be two queens in a nucleus of four frames? About a month ago I divided a strong colony of Italians which had queen-cells sealed, and raised a queen in every nucleus. I went through all the nuclei twice every week, and saw that every one had a laying queen. I left them alone for a week, without looking after them; and last Sunday, the first of July, I looked over this nucleus I write of, and found eggs and brood sealed, and saw the queen. She was a fine large one, walking over the combs. So I let them go until Sunday, the 8th, and found my queen lying at the bottom of the hive on her back. I looked over the frames, and found another queen, which seemed to be a young one, walking over the frames. Can you tell me how or where that young queen came from? The old queen was not quite dead yet, but she died in an hour after I found her. **FRANK WALTER.**

Scranton, Pa., July 9, 1888.

In the circumstances you relate, we are of the opinion that a young queen from the other nuclei, after accomplishing the object of her wedding-trip, got into the wrong nucleus. The bees, as they will do sometimes, gave preference to their new mother, and finally destroyed the old one. It is not an uncommon thing, where queen-rearing is going on to any extent, for young queens to get into the wrong hives, especially if those hives are similarly situated. We have had the circumstance you mention—or, at least, similar ones, occur several times in our apiary.

RAPE—SOWING IT AMONG CORN.

Please let me know what you would think of sowing rape in the corn, at the last plowing, for bees. Would it be advisable? How late would it do to sow? Have you the seed on hand? I have about 9 acres in corn that I thought it might pay to sow.

Enfield, Ill., June 27, 1888. **G. A. WILLIS.**

Friend W., I do not see any objection, unless the rape needs more sun to germinate and take a start than it would get among the corn. Turnips sometimes do quite well when sown in this way. I do not believe, however, that, as a rule, you can get a good crop in this manner. As rape sometimes blossoms within four weeks after sowing, I think it might give a good crop of bloom, if sown among the corn at almost any time during the month of August. Its habits are very much like those of the turnip. Where turnips will succeed, the rape would probably also succeed.

YOUNG BEES WITH DEFECTIVE WINGS; THE CAUSE.

Friend Root:—The swarm that I put the queen into that I received from you seems to act odd. I will explain. The bees are carrying out young bees of all ages. This morning I found four queens that had wings, but could not fly, but were walking around, apparently healthy and strong; and queens that were younger, having no wings, and were dead. I haven't looked at the combs. I thought this might be foul brood, but the A B C doesn't describe it so as to show me just what it is. **W. A. KNOWLTON.**

Rockford, Ill., July 12, 1888.

Friend K., in your case those bees with defective wings when in the brood form might have been subjected to too great extremes of heat and cold. If the entrance be closed on a hot day it will injure and kill a good many bees, besides injuring and killing a good deal of brood. Beginners sometimes close the entrance entirely to prevent robber bees from entering, and the result is the carrying-out of brood and bees with defective wings some days afterward. At all events, you did not have foul brood.

THE MAYWEED IN ALSIKE NOT A NOXIOUS WEED.

As the seeds of the plants that you will find inclosed in this letter came from your place, I take the liberty to ask you to name them, and ask your farmers whom you get alsike seed from not to mix it, but send it separate. Let us who buy, mix to suit ourselves. I sowed a bushel of clover seed. It took me two days to pull up that weed. It looks like dog-fennel. Don't understand that I blame you, for I don't. I am satisfied you know nothing about it; but if you knew that such seed was mixed you might give the farmers a lecture.

LeRoy, Mich., July 2, 1888. **J. S. JOHNSON.**

The weed you send is the *Anthemis cotula*, or what is commonly called the mayweed. The same thing grows in our locality; in fact, all over Northern United States. We hardly think you got the seed from the alsike purchased of us, because the seed of the mayweed matures about a month after the alsike is harvested. This weed is pretty apt to come up almost anywhere on pasture lands or with the alsike. All clover seed we send out is carefully cleaned by steam power by one of the best machines that can be purchased for the purpose. We don't regard the mayweed as a very bad plant in our locality. We have weeds, however, which resemble it very closely which we consider bad ones. Accept our thanks for the good opinion you hold of us.

TO CHANGE FROM AN ODD SIZE TO A STANDARD; THE EXPENSE OF AN ODD-SIZE FRAME.

I wish to ask your advice about what you think I had better do. I am twenty years old, and have twenty stands of bees in hives that take a frame 12½ in. by 10 deep, and room for one honey-box on top, which would hold 25 lbs., or 18 one-pound frames. I wish to carry on the bee-business right. I have an extractor. Honey is 15 cts. per lb. here, and not many bees in this part of the country. My best stands put up 40 to 50 lbs. of surplus in comb this summer, and that beats anybody else that I have heard of around here. Last summer, bees did only about half as well as they did this summer. Do you suppose it would pay me to transfer my bees to Simplicity hives, and sell my hives at one dollar apiece? I do my own hive-making and transferring. What kind of a hive do you think is the best? C. CHANDLER.

Pennsville, O., July 7, 1888.

Friend C., If you propose to increase your bees to 100 or several hundred colonies it would be much better to have them in the regular standard frame in use throughout the country—that is, the Langstroth or Simplicity, which is the same thing. Your frame is an odd size, and every time you order supplies you would have to pay from 25 to 33⅓ per cent more than for a regular size, and run the chance of possible mistakes. We should weigh carefully what friend Doolittle has said upon the subject of square frames (see p. 473); and also consider what it would cost to make the change. we would not do it all at once, however.

HOW TO TELL WHETHER A SWARM HAS ISSUED FROM THE COLONY.

Please find inclosed one dollar, for GLEANINGS another year. I like the journal very much, even though it contains considerable on religious subjects. I used to be religious in by-gone days. I don't mean to be understood as opposed to religion, only the superstitious part of it. I was, indeed, very superstitious. I regard the morality of religion the redeeming quality. But this is not what I intended to write. I want to ask one or two questions in regard to bees. Is there any way to tell whether a hive has sent off a swarm by examining it? Or, in other words, what is the condition of the old swarm generally? What effect will it have to turn hives now facing the west so as to face the east, at this season of the year? C. M. BURGESS.

Council Bluffs, Iowa, June 14, 1888.

Usually we can tell when a swarm has issued from a colony or colonies by the reduction in the number of bees; also by the fact that there are a number of queen-cells started, and no laying queen. If you have few colonies you would be pretty apt to know their strength; and any sudden reduction in numbers would make itself manifest as soon as you examined them.—It would not do to change the entrances at this time of year from west to east. As soon as the first permanent cold weather comes on you can reverse the entrances, or you can do it early in the spring. To do it now would only result in confusion to returning bees, and perhaps a loss.—Friend B., your opening remarks would sound to me equivalent to saying that you used to be a *good man* in by-gone days; but I suppose of course this is not what you mean.

CANNING CORN, ETC.

Friend Root:—Can you tell me a sure way to can corn (roasting ears) so it will keep fresh and good? I have been canning some as I can fruit, and it sours and bursts out. If you don't know, please ask the question through GLEANINGS. My bees are doing well—have taken some fine section honey; sells readily at a shilling a pound. I aim to extract a barrel of honey next week. The horsemint is about done. Other prairie flowers are coming in.

Milford, Tex., July 7. J. A. DILLEHAY.

Friend D., there is not any way to can corn so it will keep, outside of a regular canning-factory. Some sort of a pickle, or chemical is used, I believe, to make it keep, and then it has to have special treatment besides, in the way of boiling it a great while, or something of that kind. We can can tomatoes, and not lose one in a hundred; but our man who has worked in a corn-canning establishment says we had better not undertake corn, for they have a great deal of trouble, even in the best establishments.

THE BEST CLOVER FOR HONEY; ITALIANS, ETC.

I have set out three acres of Simpson honey-plants; set in June; all are growing finely. I want to sow eight acres in alsike or some other good honey clover. Which would you recommend as the best? I see in some seed catalogues some new clover recommended as being superior to all others for honey. I gave the Italian bees a thorough test last year. My black bees made nothing, but my Italians made 40 to 60 lbs. to the stand, surplus honey. The black bees all died, so I have nothing but the Italian. Don't want any other. J. GEORGE.

Buffalo, Mo., July 11, 1888.

There is no clover so good for bees or stock as alsike, that we know of. If you are going to sow that 8 acres to clover we would not put in any other. The clover to which you refer is probably what is called "sweet clover." In most localities it grows spontaneously, and is regarded as a rank weed, though not one that can not be exterminated easily. In some seasons of the year the bees seem to work on it quite busily, but we think it would never pay anybody to sow it, in a cultivated field. It might do to scatter the seed along the roadsides or waste places where weeds generally take possession anyhow.

HOW TO SHIP A COLONY OF BEES.

I wish to send a full swarm of bees to Iowa the first of next week by express. How shall I do it? It will be one upon 10 Langstroth frames, in the same kind of hive. Will it do to fasten the frames so they can not move and cover the top of the frames with wire cloth? The frames are full of brood and honey. C. C. RINEAR.

Brecksville, Ohio, June 28, 1888.

If you have the old-style Langstroth hive, tack wire cloth over the portico, and also over the top of the frames. Each frame should be securely fastened so as not to shuck in transit. This may be accomplished in one of two ways. First, by grooved boards shown on page 25 of our price list, or by means of sticks exactly ½ inch thick, and of suitable length. Two of these sticks should be placed between each frame, one at each end. It is well to put directions, conspicuously placed somewhere on the hive, to the effect that it must be handled with care, and kept out of the sun.

WAGES FOR AN APIARIST.

I have lately come to this country, and have employed a gentleman to look after an apiary, and have no basis to calculate what would be a just and fair remuneration for his labor. I give him board and lodging, and his duties are to manage an apiary of about 100 hives, and also a queen-rearing business. He has to put together all hives, frames, etc., and do all the work of the apiary; but in this he has a good deal of help. Perhaps you have an overseer in a similar position; or if not, you would be kind enough to refer me to an apiarist who would tell me what salary, besides board and lodging, I ought to give. I am in total ignorance myself as to how this labor is paid, and shall be much obliged to you if you will be kind enough to inform me on this point. FREDERICK L. CURTLER.

Alexandria, Va., July 1, 1888.

Friend C., we have never employed an apiarist in the way you speak of in your letter. We should think, however, that he ought to be worth more than farm labor. We pay our experienced help in the apiary, on an average, $1.50 per day, the recipient boarding and lodging himself. As board and lodging are worth on an average $3.00 per week, you can estimate yourself about what it ought to be worth. The price of labor is much less in some localities than in others. If we are correct, in Virginia wages do not average quite as much as further north. Perhaps $15 or $20 per month, with board and lodging, will be fair pay. Of course, it depends very largely on what agreement can be made.

HOW SHALL WE EXTRACT HONEY CANDIED IN THE COMBS?

Some of my honey grained, and I could not extract it. What had I better do with it?

C. M. FARRAR.

Confidence, W. Va., June 27, 1888.

Friend F., you have come on to a very difficult operation. A good many decide there is no way to get the candied honey out of the combs, except to give such combs to bees that are rearing brood largely during a dearth of pasturage. There is still another way that has been successful to some extent: Hang the comb of candied honey in a wash-boiler. Put on the cover and get up steam enough to melt the candied honey, but not melt the comb. Then extract. One extreme is, to melt the wax and spoil the comb; the other is, not using heat enough to get the honey out.

DUCKS DEVOURING BEES.

Thinking may be I have discovered what will to many if not all of your readers prove to be the discovery of a new enemy against which it is best to protect their bees, I write to say that ducks have been seen here to stand at the entrance of a hive and devour bees as fast as they could make their appearance going in or out. The ducks seemed to care little for the stinging of the bees.

PROSPECTS FAVORABLE FOR TEXAS.

I started this spring with 16 colonies. I have now 40, and expect to extract nearly 2000 lbs. of honey in a few days. Horsemint is in full bloom, and yielding an abundance of honey of the finest quality. This has been a seasonable year; and, when seasonable, will equal even Florida for bees and honey in this section. Reports from all bee-men here are encouraging. J. G. O'BRIEN.

Dublin, Texas, June 25, 1888.

THE PRESENCE OF BLACK BEES IN AN ITALIAN COLONY ACCOUNTED FOR.

While the greater part of my bees are fine Italians (my queens were reared by a friend who purchased his queens from you), there are a few in each colony jet black; yet I know that there are no native blacks among them. It is a query in my mind how they came from an Italian queen. Why is it? O. C. WILSON.

Bloom Center, O., July 2, 1888.

The presence of black bees among your Italians might be accounted for in two ways. (1) If there are any black colonies in the immediate vicinity of your Italian colonies, the latter will receive a few stray bees from the former, and *vice versa*. The bees of neighboring colonies will intermingle a little, more or less. (2) If your new Italian queens have not been in the colonies over three or four months, the old original blacks may not have died off entirely yet. You don't say whether you purchased a tested or an untested queen. If the latter it would be nothing strange if you found a few blacks among her progeny. Those who sell untested queens do not guarantee that their progeny shall be pure.

HOW MANY HEADS OF CLOVER DOES A BEE VISIT IN ORDER TO MAKE A LOAD?

I have never seen any report in GLEANINGS as to how many clover-blossoms a bee visits before it gets a load in different localities. I went out in the field yesterday, and watched for a bee. I saw one come, and he visited 204 blossoms before he got a load, and it took him just 25 minutes. White clover is in full bloom here now.

SUNDAY SWARMING.

How about the bees working on Sunday for all of those men who wouldn't hive a swarm on Sunday? I should think they would shut them up in their hives, and not let them work. I don't think it is wrong to hive a swarm on Sunday, if they happen to come out. C. C. PHELPS.

East Windsor Hill, Conn., June 23, 1888.

Thank you, friend P. Even 204 visits are a good many, but I believe that some former contributor has put the number a good deal higher than this. Are you sure the bee had not visited a good many clover-heads before you saw him?

WHY THAT SWARM LEFT.

I should like to ask your opinion as to the cause of a swarm of bees leaving. It was a very large first swarm which I had tried to prevent swarming, by cutting out queen-cells. I examined each one of the ten brood-frames carefully, and cut out eleven cells in different stages of construction. On the second day after this they swarmed. I hived them and gave them a frame of brood, and set the hive on the old stand. They stayed until the next day, when they came out, and, without alighting, went straight to a tree about half a mile away. They had built two large pieces of comb, one on each side of the frame of brood, which contained a small quantity of honey and some eggs. Can you give any reason why they left in this ungrateful manner? The frame of brood which I gave them I took from a hive that had swarmed a few days before, and I thought perhaps the unsealed larvæ were too large.

England, Pa., June 20, 1888. L. B. POST.

Friend P., your bees had picked out their hollow tree, and got it cleaned out and already fixed up for housekeeping before they swarmed at all. Under such circumstances you could not well induce them to give up their project, especially if you let them remain on the old stand, and this is one very good argument in favor of hiving at some little distance from where the parent colony stood. Where they pick out the location before swarming, they are pretty sure to move to it, sooner or later.

SHRINKAGE IN BASSWOOD LUMBER, AGAIN.

I received your letter some time ago. You said I did not take into consideration that basswood shrinks and swells more than any other lumber. I thought that was where the mischief came in. I saw in GLEANINGS for June 1st, page 454, "Sections exactly seven to the foot." I was glad to hear you say that you were not going to stop trying to get them just right. You said one good friend accuses you of giving scant measure, as you did the man who sold you the apples. Why, Mr. Root, I did not think you gave scant measure to cheat your customers. I thought you did not have charity enough for the man who made the barrels. You know it was a very dry season, and those barrels might have shrunk to the shape of a stovepipe.

I want you to forgive me for what I said in that letter. When you have any thing that I want, I shall send for it. I shall try to use the sections. They are nice, only too narrow.

I started the winter with 43 swarms, and came through with them all. I put 18 swarms in the cellar, and wintered 25 on summer stands. I put them in the cellar December 1, and set them out April 26. Those that were wintered in the cave have been swarming lively, with but little honey coming in, and not one of them that wintered outdoors has swarmed; yet those that wintered out, all had young queens; and those that wintered in, all had old ones.

Bees have wintered very poorly here. One man had 38, and lost them all but two. The loss is about 65 per cent. My bees have gathered honey enough to breed upon, good and strong; but I have not got one ounce of honey yet. The white clover was killed by the drouth.

I have just been cutting out queen-cells. I cut them all out but 3; and if we can not catch the queen when she comes out, we let them alight on some bush and look at the cluster. A few minutes, and the queen will crawl on the outside, then we pick her off and return the bees to the old hive.

Moline, Mich., June 25, 1888. JOHN SHORT.

Most gladly, good friend S., will we forgive any thing there is to be forgiven. I like your remarks, too, in regard to charity; and I do believe that a lack of charity is one of the greatest sins that afflict humanity. May be I was a little too severe about those barrels of apples; but it seems to me it would require a pretty big stretch of charity to suppose that the shrinkage of the lumber of which the barrels were made would reduce a good plump old-fashioned barrel to the shape and size of the new-fangled ones.

FLAT-BOTTOM FOUNDATION A FAILURE.

I received the goods, and am well pleased with every thing except the flat-bottom foundation. I hung the strips right in the center of the brood-chamber of my strongest colonies, to have it drawn out into comb; then I cut them and filled the sections, and in every instance they would gnaw it to a smooth straight sheet, then form the cell, which time occupied 60 to 70 hours; but some of the natural base was complete in 24 to 30 hours (of Dadant's extra light), so I have condemned the flat-bottom foundation for me, and will ship it back if you request it, or try to sell it for you, for I would not use it, even if it cost but 30 cts. per lb. There is too much time lost in changing it, to suit me. The labels are splendid, so is the rest of the goods.

ABRAHAM KOONTZ.

Crestline, Ohio, June 26, 1888.

You seem to be pretty decided against flat-bottom foundation, friend K. I suppose you have read what our good friend P. H. Elwood says on the other side of the question, on page 160, March 1.

A KNEE-PAD INSTEAD OF AN APIARY STOOL.

Last season I made and used in my apiaries a device that has given me much satisfaction. It is a light cushioned board to kneel upon while working with the bees. I never liked sitting down on a box or hive-cover; it keeps one too far away from his work, unless he is willing to bend his back more than I like to. So my practice has been to place my knees on the ground by the side of the hive, sometimes on a piece of board if the ground was too wet. After some years of such experience it occurred to me there might be a better way. The result was a knee-pad or cushion made as follows: Take a piece of thin light board, 8 by 14 inches. Nail cleats 1 x 1½ x 8 inches across the ends on the under side, to strengthen the board and make it rest more firmly on the ground. Now cushion the top of the board by tacking on a piece of strong cloth around the edge, and fill with wool, hair, or other elastic material. It is finished by tacking on a light strap across over the middle, to serve as a bail by which it can be picked up by the little finger of the hand that carries the smoker, if the other hand is occupied. T. P. ANDREW.

Farina, Ill., Mar. 27, 1888.

Very good, friend A. But why not have a variety? In our experience, for the purpose of manipulating hives one posture becomes monotonous and tiresome. Our boys sit, kneel, and stand while working over the hives. As a general rule we like best sitting on a Simplicity cover. By rocking this forward and backward, like a milkstool, the distance of the body from the hive can be regulated easily and perfectly. In early spring, when the ground is soft and wet, your pad would doubtless be quite a convenience. But why not go one step further? Attach small pads to each knee. They would always be handy then, you know, and you wouldn't have to bother that little finger, either, in carrying them around.

In addition to what Ernest says above, I want to say that my wife once remonstrated so much at the way I was using my knees by kneeling down in front of a hive where the ground was wet or damp, that I used a light board. The objection to the board, however, was that it was not so soft to kneel down on as the grass and sawdust. Ernest's suggestion of having the knee-pads a fixture, would tend to make the apiarist a still more singular and eccentric-looking individual. With one of Mrs. Axtell's bee-bonnets, knee-pads, and some of the other modern appliances, the apiarist would be well calculated to make people stop and stare, and ask questions.

OUR QUESTION-BOX,

With Replies from our best Authorities on Bees.

All queries sent in for this department should be briefly stated, and free from any possible ambiguity. The question or questions should be written upon a separate slip of paper, and marked, "For Our Question-Box."

QUESTION 67.—*When a colony is run for extracted honey, should the queen have access to both upper and lower stories? Will such liberty prevent or largely check swarming?*

Yes. Yes. H. R. BOARDMAN.

Yes, to both questions, if plenty of room is given.
A. B. MASON.

I prefer that the queen be kept in the lower story; yet so keeping her augments swarming very much.
G. M. DOOLITTLE.

Yes, emphatically, especially if all your extracting-combs are worker-combs. DADANT & SON.

I prefer my queens to have access to both stories, and swarms are, with me, the exception and not the rule. CHAS. F. MUTH.

I think it would check swarming, but I'm not sure it would be best in other respects.
C. C. MILLER.

Yes, if you desire honey rather than increase. Such liberty will, in my experience, largely check swarming. MRS. L. HARRISON.

The queen should be allowed access to all parts of the hive. It will largely check, if not entirely prevent, the desire to swarm. L. C. ROOT.

I am inclined to think that the queen had better have her own sweet will. Say slightly, instead of largely, in the second question. E. E. HASTY.

I should prefer that she have access to the lower story only. I think that giving her the liberty of both stories tends to discourage swarming.
O. O. POPPLETON.

Until within the past two years, both of them poor honey seasons, this has always been my practice, and with me it has entirely prevented swarming. JAMES A. GREEN.

I prefer to have her out of the way of the upper story. Neither will prevent or check swarming, so far as I could see, since using queen-excluding boards. PAUL L. VIALLON.

I prefer to have her remain below, and she usually pleases me. If she did not I should use a slatted honey-board, and, if necessary, it would not be a queen-excluder. A. J. COOK.

When two stories are used, it often would be more convenient to keep the queen below, or outside the hive. Too much brood is a hindrance for either comb or extracted honey. The liberty of the queen will check swarming somewhat.
P. H. ELWOOD.

Such liberty will tend to check swarming, but not enough so that the apiary so worked does not need constant watching. There is the rub. Whether it is best or not depends upon how your stock of combs and queens proportion with each other in any given season. JAMES HEDDON.

I let the queen in both stories, thinking I get more honey; but to avoid annoyance with brood above I often wish I had her shut down. It only very slightly checks swarming. R. WILKIN.

The natural tendency of the queen is to breed in the upper story, and desert the lower. I used to exchange the upper for the lower combs when the uppers were filled with brood. A few years ago I ran fifty chaff hives for extracted honey—eight combs below and twenty on top. By changing as above, and by spreading the upper combs by placing the empty combs between the full ones, and moving the full ones gradually to the outside, I succeeded in almost entirely checking swarming. Only one out of the whole lot swarmed, and they were all large colonies too. GEO. GRIMM.

For extracting we use large hives, and let the queen all through the hive. The more combs we give a colony, the less they are inclined to swarm. We use the L. hive, 8 frames, three stories high; usually extract once a week, divide so as to increase one new colony from three or four old ones; have very little swarming. We have 12 colonies in Metcalf hives; space occupied, 13½ inches by 13½, x 42 inches deep. We have had them three years. There has been but one swarm, and that went back; no winter loss for the three years outdoors.
E. FRANCE.

There seem to be some differences of opinion in regard to this matter, friends; but I believe the general feeling is, that where we use the extractor, if we want to escape the annoyance of swarming it is better to let the queen go where she pleases. I have had quite a similar experience to the one mentioned by George Grimm.

QUESTION NO. 68.—*1. In running for extracted honey, is it advisable to contract the brood-chamber if a queen-excluding honey-board be used between the upper and lower stories? 2. Whether contraction is practiced or not, does it pay to use a slatted honey-board, either with or without zinc strips for extracting?*

1. No. 2. No. E. FRANCE.

1. No. 2. No. MRS. L. HARRISON.

I have never tried either. GEO. GRIMM.

No to both questions. DADANT & SON.

1. No. 2. Not with me. DR. A. B. MASON.

I have not found it so, to both questions.
A. J. COOK.

I would use no honey-board when extracting. Give all the bees perfect freedom of access to all parts of the hive. L. C. ROOT.

I have never found any use for queen-excluders between the surplus and brood apartments, in raising either extracted or comb honey.
H. R. BOARDMAN.

1. I don't believe it is, but I've had no experience. 2. I think, on account of the tendency to prevent swarming, it might be better to allow the queen full range. C. C. MILLER.

1. Not at all. I want free access to a large brood-chamber and a large honey-chamber, the size to be governed by the size of the colony, as a matter of course. 2. It does not, in my estimation.
CHAS. F. MUTH.

I raise comb honey mostly, so my answer borders on the theoretical. I would advise to omit both the contracting and the honey-board. E. E. HASTY.

Yes, it pays to contract. I always use a honey-board to break joints, and offer a bee-space, always queen-excluding, if your stock of comb is well in use. JAMES HEDDON.

1. No. 2. If made queen-excluding it will save only the trouble of having brood in the upper story; but as far as dollars and cents are concerned it will not pay more than if none are used.

PAUL L. VIALLON.

1. If I used a queen-excluding honey-board, I think I should use a small brood-chamber. 2. With our size of frame, I should prefer to run one-story hives rather than to use the zinc honey-boards.

P. H. ELWOOD.

1. In most localities I think it scarcely advisable to contract the brood-chamber for extracted honey.

2. Unless the combs are to be handled often, I do not think I would use honey-boards unless as queen-excluders. JAMES A. GREEN.

1. In running for extracted honey I usually use the full complement of combs in the brood-chamber, which is nine Gallup frames. 2. If we wish the queen kept below, use a zinc honey-board, for the other is not always sure to keep her there.

G. M. DOOLITTLE.

I have not experimented with slatted honey-boards. I have used only partly worn duck covers, covers with holes eaten in them placed between the upper and lower story, simply to retain heat for breeding below and to retard the queen's going above in the fore part of the season. I do not wish to contract the brood-nest to less than 8 frames, Langstroth. R. WILKIN.

1. As a general rule, I would say no; but the correct thing to do depends much on location, duration of honey-flow, strain of bees, amount of time at the disposal of the bee-keeper and whether much or little honey needs leaving in the lower story at the end of the season. 2. My experience with such boards is too limited for me to give an opinion. O. O. POPPLETON.

The answers to this query, too, also seem to indicate that we do not need the perforated zinc where we work for extracted honey.

QUESTION NO. 69.—*2. What share of the honey-crop is it fair to give for the care of bees, the owner furnishing all necessary supplies? 3. What for the honey-crop and increase both?*

1. One-half; 2. One-third. MRS. L. HARRISON.

From ⅓ to ⅖. It depends on many conditions.

DADANT & SON.

I have had no experience with the arrangement.

CHAS. F. MUTH.

2. One-half of honey; 3. Increase belonging to the party furnishing. L. C. ROOT.

So much depends upon so many unmentioned conditions that I will not attempt to give any figures.

JAMES HEDDON.

2. It depends upon how much of a crop there is. Last season all the honey and all the increase would not have paid. DR. A. B. MASON.

2. Three-fifths. 3. One-half; but both these conditions may be much changed by other contitions of the contract. O. O. POPPLETON.

Ask those who let bees. I suppose it is about right to share all profits alike. A. J. COOK.

Equities would vary greatly with locality and circumstances. Say one-third the honey, or one-fourth the honey and increase. E. E. HASTY.

"Fair!" That depends on the location and chances of crop, and eventually on the crop itself, and how matters are managed. Perhaps for a general answer, ⅓ or ¼. GEO. GRIMM.

2. Perhaps half. 3 That would depend on circumstances. In some cases the bees might quadruple, and in others scarcely swarm at all. I have had no experience in this direction.

C. C. MILLER.

2. Half to ⅔. All depends on the amount and condition of bees at the beginning of the season. 3. Owner furnishing all supplies, I think half of honey and one-third of increase. This also depends, as above. PAUL L. VIALLON.

2. Half the crop. 3. Half the crop and half the increase, each furnishing hives for his share of the increase. In this, though, as in every thing else, much depends on what kind of a man does the work. Some men are worth more than others.

JAMES A. GREEN.

I don't believe in letting bees out on shares. Pay by the day, month, or year, a fair compensation for his work, then the assistant gets pay for what he does, and should be satisfied; then if there is any profit you get it. If the owner can not make it pay, go out of the business. E. FRANCE.

Any bargain you can make with the owner of the bees will be fair; and, to tell the truth, there are about as many different bargains as there are people who let bees on shares. Perhaps ½ the honey or ⅓ the honey and increase would not be far out of the way. G. M. DOOLITTLE.

A furnishes the bees and all the supplies. He takes half of the honey and in the end takes all of the bees, which is usually a less number than he puts in. I have seen this kind of partnership tried in a number of instances, and the principal (A) comes out second best. P. H. ELWOOD.

There are so many things to be taken into consideration that it is out of the question to fix any rate for working bees on shares. The careful apiarist who has bees to let out on shares will certainly look carefully to his man, the one who is to take them, and will be more liberal in making terms with some men than he would be with others.

H. R. BOARDMAN.

I think I should agree with our friend France. I do not believe in letting bees out on shares in any shape; and my reasons for it are, I have heard so many unpleasant experiences. The matter is necessarily left so loose that each one has a chance to think that the other has the best of the bargain; and very often both parties feel they have been wronged, and sometimes both parties become estranged where before they had been friends. Avoid, as far as possible, any kind of complicated business arrangements. If you could read the letters I have to read, of complaint because of the unfairness of different individuals, I think you would say with me, either buy or sell outright, and have it done with.

MYSELF AND MY NEIGHBORS.

Blessed is the man that walketh not in the counsel of the ungodly, nor standeth in the way of sinners, nor sitteth in the seat of the scornful.—PSALM 1:1.

IT was a bright Sunday morning in July when I started out for a walk of perhaps a mile and a half. Of course, I should not take such a walk on Sunday morning unless something called me. One who had worked for me at different times for a number of years was lying at the point of death. Perhaps I should not say *lying*, however, for he could not lie down at all; he was sitting up by the table, and had not been able to lie down for over a week. I had visited him the night before, and he was very anxious to have me pray for him. He knew he could not get well, but he told me that rebellious thoughts and feelings would keep coming up. He said that Satan seemed to keep insinuating that God had not dealt fairly by him. The poor fellow had reason for such thoughts, it would seem, if anybody ever had. Almost all his life he had been a cripple. Nearly a year ago his lameness became so much worse that he was taken to a hospital, and a surgical operation was performed upon him. The bone had decayed, and a portion had to be removed. For a time it seemed doubtful whether he would ever recover. As springtime came on, however, the wound seemed to heal, and he was able to walk around by the aid of crutches. On the Fourth of July he came up town and seemed quite joyous to think that he might soon be at work again. He even removed his crutches from the ground, and stood up straight on both feet. Not very many days after, however, erysipelas set in, and the doctor said the unfortunate man could probably not live a week. He was suffering bodily pains besides his mental troubles.

"Robert," said I, "is there any comfort or satisfaction in indulging in these thoughts, that God has not dealt fairly by you?"

"No, Mr. Root," said he promptly, "there is no comfort or satisfaction at all, but quite the contrary."

Did you ever think of it, dear friends, there is no comfort or satisfaction of *any sort* in comparing ourselves with the rest of the world in a way that reflects on God the Creator? There is no comfort in any kind of rebellion against the God who made us. I questioned Robert considerably, and talked with his wife, and I also talked with the two little children, three and five years old. The father and mother had at one time, during a revival meeting, gone forward and asked for the prayers of Christian people. I supposed they had at the time united with the church, but I now learned that they had not—the whole matter had been dropped. Like many others, however, they did not seem to think it a matter of very much moment whether they joined the church or not. As they had not joined it, of course they had not attended, and I am afraid that Bible-reading and prayer had also mostly been laid aside in that household. My poor sick friend seemed to wonder why he should be troubled with rebellious thoughts at such a time, especially when he was so near to death. Every time I visited him he seemed particularly anxious that I should pray that he might have grace to say, "Thy will, not mine, be done." When I suggested that, had they united with the church during that winter when they felt so strongly called that way, these temptations might have been for the most part avoided, they seemed somewhat surprised. The above conversation happened the night before; and at the time of which I am writing, I was perhaps half a mile out of our town of Medina, toward the cottage of my friend. All at once I was startled by the sound of a reaper; and right before me, on the hill, was a machine in operation. I stopped and spoke out loud:

"Why, is it possible that we have a man in our neighborhood who has so little fear, either of God or man, as to start a reaper right within hearing of our churches, and within hearing of the congregation as they gather for worship!" Another man was taking care of the bundles, so there were at least two of them who openly defied public opinion and the laws of God and man. They started out to work on the Sabbath day exactly as if it were any other day. I passed along, feeling sad. When I reached Robert's home I found him somewhat weaker than on the night before, but still troubled by these same doubts and rebellious feelings. Could it be a kind Father's hand that thus afflicted him while all the world seemed happy, joyous, and free from pain? I comforted him as best I could, and he seemed to get into a better frame of mind. I said:

"Robert, you are by no means the worst off of any one in the world. I would far rather be in your place, and sit in your chair, than to sit in the place of a man whom I passed but a few minutes ago."

He looked up in surprise, as did also a neighbor who had just dropped in. I explained what I meant, and the neighbor told me who it was that was running the reaper. He added that, if it were himself, he should expect the reaper to break down, or some other bad luck happen, at every round he made in the field. He further informed us that it was the man's regular habit to work on Sunday; that he claimed he could not get along unless he worked on Sunday as well as on week days.

"But, *does* he get along?" asked I.

"No, he does not," was the reply. "He has the worst luck of any man in the neighborhood, and his bad luck comes so repeatedly and continually that I don't see how he can ever expect to do any thing at all."

You see, friends, this comes right in line with our opening text, or rather, perhaps, in a line with the rest of the verses of that short chapter, the first Psalm.

In our last talk I told you how much happiness I had found in paying people promptly, and in contriving to save their time, especially during this busy season of harvest. Well, dear friends, I have had some sad experience in finding out what it is that makes one unhappy and miserable. I found out long ago, as did poor Robert, that nothing makes a man miserable and unhappy sooner than rebellious thoughts against

God. The text at the head of our talk says, "*Blessed* is the man that walketh not in the counsel of the ungodly." At the close of the chapter we have some brief pictures of the state of mind of the ungodly. If you want to be miserable, just set at naught God's laws, and complain because he has made mankind or the universe in the way he has; complain because you are afflicted with disease and pain; or just let complaining feelings get a lodgingplace in your heart for a little time, because we have fine weather on Sunday, and it rains on week days; allow yourself to get into a complaining mood because of your circumstances, and you will get miserable straightway.

The neighbor of whom I have been speaking made some further remarks about those who work on Sunday not getting along. He said he knew a man who owned a sawmill, and this man used to save up the water that collected in his pond during the week, and then run his mill on Sunday. On week days he wished to be with his men who were working on his farm; but when Sunday came, no one was at work on the farm, and so he saved time by running his sawmill on Sundays and on no other day. Well, something always happened to the sawmill. One expensive breakdown followed another, until the man himself said that his mill had for years been nothing but a bill of expense, and a drawback. The poor sawmill had to take the blame instead of the man and his bad management. Let me digress a little.

About a year ago a man came to me wanting to borrow my manure-spreader. I told him that the machine was complicated, and that, while it was simple in the hands of the one who expected to use it day after day, it was quite sure to receive injury in the hands of a stranger; that I could not consent to let it go unless my man went with it. But he insisted that *he* could manage it all right; but I told him I did not wish to lend it that way. I was absent from my home, however, for a few days (I think it was when I was visiting friend Terry), and on my arrival home I learned that this man had gone to the tool-house, taken the manure-spreader, without leave from anybody, had broken it so it was unfit for use, and had returned it in that shape, without even a word of apology. As I did not see any thing of him, I sent him a statement of the case by letter. Well, we have sent him several statements for the use of the machine, and asked him to pay half of the expense of getting new parts to repair the damage. He has not replied even yet, although he perhaps knows that I could get him into a great deal of trouble for taking my property without permission. What kind of a neighbor is a man of this sort? I am writing about neighbors, dear friends; and if I forget it, I hope you will call me to order. The man who broke my manure-spreader, and who, since then, never goes past our house for fear I may see him, is the one who was reaping his grain on Sunday. Now, I am not writing him up because I have a grudge against him. I am sorry he is such a bad neighbor, but I am ready to talk kindly to him at any time. I have not just yet decided what a Christian man ought to do under such circumstances; but I have decided on one point, and that is, that it is not right nor best for the neighbor's own good that such things be allowed to pass or be dropped. I have talked to his brother, and I have written a letter to his mother, and I expect to have a good talk with him one of these days. The point I wish particularly to emphasize right here is, that these things illustrate the *character* of the man. I do not mean by this, dear friends, that every one of you who work on Sunday would borrow tools, and return them in a damaged state, without a word or any offer to pay; but I do believe that the man who commences to work on Sunday because he does not find the six days long enough that God gave him, will pretty soon begin to encroach on his neighbors.

Now a word in regard to the man who ran his sawmill on Sunday. I do not suppose that God took particular pains to cause his machinery to break because of his digression. But the great point is this: The man who disregards the feelings of his neighbors, and disregards the laws of God to such an extent as to do such an act will be reckless, and disregard other natural laws. His machinery will break, and he will have bad luck and misfortune, so long as he persists in that *attitude of heart*. It is the attitude of heart that makes the trouble. It is the rebellion against God's holy law that brings unhappiness and dissatisfaction. The man who works on Sunday complains of God because the Creator did not give him six days and the seventh *besides*, to do his work in; he complains of God because God does not manage to have it rain only nights and Sundays, that we may not be hindered in getting in our full six days every week.

The man who works on Sunday can not very well have that gentle, peaceful, pleasant frame of mind that is most conducive to careful, methodical, good work. He is in the condition of mind of the man who is nervous and excited. If you will think back you will remember that you are not fit for active work after you have quarreled with a neighbor. Your mind is disturbed and off its balance; and nothing in this whole wide universe so upsets a man, and throws him so badly out of balance, as to quarrel with his Maker. Think of rebellion against the very Being on whom you depend for the very breath of life you draw! We sometimes see men openly defiant. Such men, however, are hardly in their right mind. Well, now, suppose such a man has a family of children. One of them is suddenly stricken down by disease. The physician says there is little if any hope. Perhaps he does not say, "With God alone rests the issue of this sickness;" but whether he says so or not, the conclusion forces itself upon the mind of every candid, thinking man. How futile and how foolish it is to rebel against God! and yet I am afraid, dear friends, that poor Robert, as he sat there hour after hour and day after day by his table was not the only one who is tempted to feel rebellious.

As the physician had said, Robert did not live even one week; but I am happy to tell you that, before he died, he had learned pretty well to say, "Thy will, not mine, be done." I did not see him just before his last moments; but his friends told us that he selected the 23d Psalm to be read at his funeral service. Now, friends, can you not, with what I have told you in mind, catch a glimpse of the beauty of this 23d Psalm in a way that you never did before? Poor Robert! He had never seen much in life but trouble and privation, sickness and pain; and, added to it all, Satan tempted him in his last moments by such suggestions as I have told you about. When every thing seemed hopeless, however, like a drowning man he turned and grasped firmly to these wonderful soul-cheering words—"The Lord is my shepherd; I shall not want." These words, above all others, he chose to be read at his funeral sermon; and we have every reason to believe that he died holding fast to them. Is there not a lesson here, dear friends, for you and me? When you feel tempted to complain again, think of the little story I have just told you, and of poor Robert. Was I not right when I told him that I would rather have his place, and sit in his chair, than to have health and strength, and be in the place of that man who was cutting his wheat on Sunday?

Blessed is the man that walketh not in the counsel of the ungodly, nor standeth in the way of sinners, nor sitteth in the seat of the scornful.

REPORTS ENCOURAGING.

QUEEN-CELLS NOT HATCHING; PROSPECTS GOOD FOR FALL.

BEES are done swarming in this locality. I had only 19 swarms this season. The bees seem a little backward about working in section boxes. They are giving fine returns in extracted honey. I have had considerable trouble in the way of imperfect queen-cells, or cells that will not hatch. They are built in perfect shape and size, but have had several where the larvæ looked to be about half grown, and had died from some cause, leaving the bees queenless for several weeks. Bees seem to be healthy in every respect otherwise. Can you tell me the cause of this nuisance? Bees seemed bent on leaving and going to the woods this season. I have lost 4 fine swarms, while some of my neighbors have lost nearly all their swarms. There are more wild bees this season than I ever heard of in any one year. One man has found 11 trees already. We are expecting a good fall crop of honey, as it is in the fall that we get the best returns in surplus honey in this locality. Buckwheat promises so far to yield honey finely; also forest flowers promise to give a fine crop of fall honey, from the present outlook. GLEANINGS continues to be a welcome visitor.

Luttrell, Ala., July 12, 1888. B. G. LUTTRELL.

It is possible that the queen-cells in question became chilled or overheated. Sometimes bees will take a drone larva instead of worker larva and build a cell around it. They do not do this, however, very often; but when they do it seems to be a sort of mistake. The walls are then rather smooth on the outside. The poor drones thus favored always die, seeming to be unable to endure the concentrated food. See the ABC on this subject. There is one other cause that might account for the dying of the larva. In the early stages of foul brood we have noticed that the larva in a queen-cell will sometimes die before the worker larva; but I should not be alarmed, for you probably have not foul brood.

I think the honey crop is going to be good. I shall have the first honey in the market this month. Everybody in this vicinity has the old box hive, except your humble servant. E. A. MOORE.

Reno, Nev., July 3, 1888.

POPLAR IN BLOOM.

Bees are doing better this season than ever before, up to the present time. Poplar is in bloom longer, and produced more honey, than I ever knew before. JAEES M. DENHAM.

Valley, Ky.

ONLY TWO BARRELS OF HONEY AND 400 SECTIONS, FROM 400 COLONIES.

I have only two barrels and probably 400 boxes, from over 400 colonies. Buckwheat is our only resource now. W. L. COGGSHALL.

West Groton, N. Y., July 25, 1888.

STACKS OF HONEY.

You should just see our stacks of honey. We have it by the ton. The second shipment made after advertising in GLEANINGS was half a ton to one man, and pa has been shipping every few days since. Pa says your paper beats the world on advertising. RAY MURRAY.

Ada, Ohio.

HONEY STATISTICS.

In looking over the report of Honey Statistics in GLEANINGS of July 15, we are surprised at the report in many localities, especially our own. We consider the average over 100 per cent. We have taken from one hive over 75 lbs. of honey, and divided it once. From another hive about 75 lbs., and divided it twice. The queens ordered from you gave perfect satisfaction. All persons in this vicinity who keep bees consider this one of the best years we have ever had. We are pleased with GLEANINGS. L. W. PHILSON.

Racine, O., July 21, 1888.

BEEN EXTRACTING FOR A MONTH.

This is a comparatively new country, and sparsely settled—only a few in this county and valley in the bee-business, and they have only a few stands. This seems to be a good healthy place for bees. We have a few orchards, but most of the honey is produced from sweet clover, lucern, and a few wild-flowers. I have been extracting for a month past. We mostly winter our bees on their summer stands, and they do well. N. B. BALDWIN.

Elsinore, Utah.

THE BEST WHITE-CLOVER CROP THAT HAS BEEN HAD FOR YEARS. FROM 16 TO 31, AND 1000 LBS. OF HONEY.

I had 16 colonies, spring count. I increased to 31, and have taken, up to date, 1000 lbs. of honey—about half extracted and one-half comb. I have a better home market for extracted than comb. I would sell 350 lbs. in nice 1-lb. sections, and nice white-clover honey, for straight $50, free on board the cars at East Berlin, Pa. I have too much for my home market. Extracted I do not care to sell, as I can get about as much for it as for comb in home market. We had the best white-clover crop that we have had for years, and the prospects are good for red clover and fall flowers.

Mulberry, Pa., July 21, 1888. L. W. LIGHTY.

REPORTS DISCOURAGING.

DISCOURAGING FROM MRS. AXTELL.

As no one has written us for our report of honey crop, I will send it you. A. What is new comb honey or extracted honey selling at in your vicinity? There is none on the market, and not enough in hives to keep up brood-rearing. We shall have to feed some during this month at our home apiary. At Timber apiary, bees in full colonies are getting a good living, nuclei hardly enough to live upon. We are sowing buckwheat, and shall hope to have a good crop of fall honey from buckwheat and smartweed and other fall flowers. We generally get as much in fall as spring. It seems a mystery that bees do not get a living. MRS. L. C. AXTELL.

Roseville, Ill., July 12, 1888.

"ZERO, ZERO, ZERO," SO REPORTS A PROMINENT BEE-MAN.

Mr. Root:—Had I been called upon to give the honey statistics of this locality I should have responded about as follows: a, zero; b, zero; c, zero; d, zero; e, zero. There is that much humor sometimes in the most serious of facts. No honey is to be found at any price. I have had 5 swarms from 46 colonies; but in spite of that, bees have been almost in a starving condition all this season. The cold cloudy weather prevented any ingathering from fruit-bloom; and white clover, although there is a regular turf of it, has scarcely blossomed at all. So this query, "Has the season with you been good, average, poor, or bad," may well be answered with a "zero," for I have literally had no honey season at all. Why clover has not blossomed, I wish some one would tell me. GEO. F. ROBBINS.

Mechanicsburg, Ill., July 23, 1888.

PROF. WILEY PUBLICLY CORRECTS HIS FALSE STATEMENTS.

GREAT IS TRUTH, AND WILL PREVAIL.

We are very glad to notice, even though at this late day, that Prof. Wiley has deemed it incumbent on himself to acknowledge his false teaching, through the agricultural press. The following is from the *Rural New-Yorker* of July 28:

> ARTIFICIAL COMB HONEY.
>
> Some years ago, in an article in the *Popular Science Monthly*, June, 1881, p. 254, in speaking of the uses of glucose, I employed the following sentence: "In commercial honey, which is entirely free from bee mediation, the comb is made of paraffine, and filled with pure glucose by appropriate machinery."
>
> In the article in question I do not give my authority for the above, and since that time this statement has been declared false, and I have been published, in at least one journal ostensibly devoted to the interests of honey-producers, as a "willful and malicious liar." Usually I take no notice of attacks made upon me in language which excludes the possibility of its author being a gentleman; but in this case I depart from my usual custom at the request of a friend who has been for 20 years editorially connected with the agricultural press of this country.
>
> The statement in question was made on the authority of Dr. E. J. Hallock, an eminent chemist, whom, unfortunately, science lost by death several years ago. Dr. Hallock was at that time a resident of Boston, and editor of the Boston *Journal of Chemistry*. Neither Dr. Hallock nor myself believed at that time that such artificial comb could be made commercially successful, although honey made in that way could be sold at an enormous profit if the comb could be made to sufficiently counterfeit the genuine article. It is possible that Dr. Hallock may have been misinformed in respect to this matter, but I can not say that he was. Moreover, the statement is of such a nature that I did not anticipate that any one would seriously suppose that comb honey is in danger of being replaced by the spurious article. I make this statement for the benefit of those who may have been deceived by the malicious slanders which have been circulated concerning me.
>
> The adulteration of honey is practiced to a most alarming extent in this country, and every bee-keeper will join me in my labors to detect and remove this fraud. To my personal and scientific friends I have no need to speak. I address this note to those who may have been led, without a knowledge of the facts, to believe that I purposely sought to pervert the truth. W. H. WILEY.

While our good friend Newman, of the *A. B. J.*, may not have used just the language that some of us would have used in obliging Prof. Wiley to take some notice of the consequences of his foolish statement, we of the bee-keeping fraternity certainly owe him a vote of thanks for having at length driven the professor into a corner, as it were, and for having literally *made him* recall his foolish statement. With all the explanations that can possibly be made, I think the world at large are pretty well satisfied that no professor or scientist has any right to make such statements, jokingly or otherwise; and I believe that the consequences of this piece of folly will damage Prof. Wiley's reputation in spite of all the explanations and apologies he can possibly make. Even yet he is too poorly posted to undertake to write in regard to the adulteration of honey. For instance, the expression in his last paragraph:

> The adulteration of honey is practiced to a most alarming extent in this country.

I think this can not be said to be literally true. If it were, the public will be excusable in being suspicious of every bit of honey seen on the market. The more Prof. Wiley and others of his class insist that the honey on our markets is spurious, the more will they injure themselves; and I am glad indeed to say that we have now an article from Prof. Cook, indorsing the statement I recently made, that our chemists and microscopists are making a blunder. They have pronounced absolutely pure honey, gathered by the bees, spurious; and they have, by their folly, or by their want of wisdom in making such assertions before they were sure they were right, weakened the faith of the people in their wisdom and skill to such an extent that it may take them years to regain the confidence they have lost. Pretended science is *almost* as bad as pretended honey. May God help us to get at the exact truth, not only in regard to the honesty of honey-producers, but also in regard to the honesty and skill of some of our professors and scientists.

GLEANINGS IN BEE CULTURE.

Published Semi-Monthly.

A. I. ROOT,
EDITOR AND PUBLISHER,
MEDINA, OHIO.

TERMS: $1.00 PER YEAR, POSTPAID.

For Clubbing Rates, See First Page of Reading Matter.

MEDINA, AUG. 1, 1888.

For our light affliction, which is but for a moment, worketh for us a far more exceeding and eternal weight of glory. -II. COR. 4:17.

REDUCTION IN POSTAGE ON SEEDS, CIONS, ETC.

As we go to press we learn that the law now reads:

> Hereafter the postage on seeds, cuttings, roots, cions, and bulbs, shall be charged at the rate of one cent for each two ounces or fraction thereof, subject in all other respects to the existing laws.

OUR SUBSCRIPTION-LIST.

IN spite of the poor season and the poor prospects, we have received an addition of 125 new names during the last month; expired, 73, making an access of 52 over and above our report of last month. We have at present 8355 subscribers.

MAILING QUEENS TO CANADA.

THE matter has been finally arranged once more, as our friends will see by the following, from the weekly *Herald* of New York:

> WASHINGTON, July 17, 1888.—The Postmaster-General announces in the postal bulletin to-day:—The Canada office having assented to the proposition of this department to admit to the mails exchanged to the United States and Canada packages of queen-bees and their attendant bees when so put up as to prevent injury to those handling the mails, while at the same time allowing an easy verification of the contents, such packages will hereafter be entitled to transmission by mail to Canada, provided they conform to the conditions prescribed for them in the domestic mails of this country; and similar packages received in the mails from Canada should be promptly forwarded to their destinations and delivered to addressee.

DISCOURAGING FOR CANADA.

THE *Canadian Bee Journal* of July 25 is just at hand. We learn that the season so far in Canada has been any thing but favorable for bee-keepers. The proprietors of the *C. B. J.* have been sending out postal cards, and they make a condensed statement as follows:

> The probable average yield per colony throughout the whole province will not be five pounds, the total increase not more than five per cent. The prospects for the fall flow are exceedingly poor, and the probability is that feeding will have to be resorted to rather strong.

We extend to the Canadians our sympathy, and we hope they will return the compliment to us.

PRONOUNCING GENUINE HONEY SPURIOUS.

You will remember that, in our last issue, I spoke repeatedly of the fact, as it seemed to me, that our State chemists were calling genuine pure honey spurious. Well, we learn from the *A. B. J.* of July 25, that numbers 15, 16, and 17 of the honey pronounced by the Dairy Commissioner of New Jersey to be bad, mentioned on page 453 of this journal, came from our staunch friend C. F. Muth. Woe betide the chemist who shall accuse our stalwart honest German friend of such a thing as that! and it seems that even Prof. Wiley has had the assurance to ask friend Muth for some samples to analyze. Friend Muth's reply is as follows:

"We *know* what we deal in, and handle only straight goods—and want nothing more to do with your 'apparently pure.'"

Some years ago while in Cincinnati I got lost, as a matter of course. I always get lost in a big city. I made some inquiries for friend M.'s place of business. Everybody knew him. Yes, the women and children knew him; and, furthermore, everybody, so far as I could learn, seemed to speak his name with pride. Friend M. is not only well off in this world's goods, but he has a reputation for strict honesty and integrity among the whole German population as well as the English; and the chemist or any body else who accuses him of adulterating his honey would hurt himself a good deal more than he would friend M. Not only the whole city of Cincinnati, but the honey-people of the State of Ohio and other States would laugh at such a charge. You need not say that friend M. has been humbugged. He is too sharp and keen to be humbugged on honey.

OUR OWN APIARY.

CONDUCTED BY ERNEST R. ROOT.

A POOR SEASON FOR HONEY.

IT will be remembered, on account of foul brood we decided to devote our apiary to comb honey. Although sections have been supplied either in wide frames or T supers, very little honey has been secured. I told a friend yesterday, in response to a question as to how much honey we had secured, that, according to my best knowledge, we had obtained *two filled sections* of honey from 240 colonies. To-day (26th), examination shows we have obtained at least 25 lbs. This is about all the surplus that we can boast of. All the brood-nests, however, are pretty well filled with capped honey.

Neighbor Shane, who lives five or six miles from us, and usually secures a good crop of honey, writes that his yield will be very small, and that his bees worked only a day and a half on basswood.

RED-CLOVER HONEY.

This evening neighbor Clark, whose apiary is about a mile distant, informed us that his bees had suddenly started to work on something. The basswood having closed, we surmised that it might be "bug-juice." To ascertain whether our bees had been after the same article, we (A. I. R., J. T. C., friend C., and myself) placed our ears near the entrances of some of the best colonies in our own apiary, and, sure enough, there was the roar we usually hear during a honey-flow consequent on the evaporation of nectar. We *imagined* that we smelled "bug-juice." As it was dark, we made no further examination.

July 27th. — The neighbor referred to above brought us a sample of the alleged "bug-juice," which he extracted from yesterday's gathering. It was light-colored, and quite thin, as the bees had not had time to evaporate it. The unmistakable flavor of bumble-bee honey, which we boys used to consider so fine, was present. We came to the conclusion that it was red-clover honey, and subsequent examination and testing, in our own apiary, showed the presence of this same new honey.

GOD'S GIFTS.

NO GOOD THING WILL HE WITHHOLD FROM THOSE THAT LOVE HIM.

LAST September we sowed a great lot of Boston Market lettuce seed, in order to have plants of good size to put into the greenhouse as soon as it began to be frosty. They were taken up and set in the beds by means of our transplanting-tubes, as explained heretofore. They started out and grew finely until the sun began to get low down in the southern horizon, even at noon day, as it does toward Christmas, and then the plants came to a sort of standstill. The soil was of the very best, and the ground was kept watered just enough and not too much. Still they did not grow satisfactorily. The general conclusion was, that it was on account of cloudy days and lack of sunshine. But why couldn't lettuce grow with plenty of daylight, proper temperature, plant-food, etc., even if it didn't have the direct rays of the sun? More of this anon.

One day I noticed a small plant that seemed to have leaves of milky whiteness instead of the usual yellowish green. In a few days it was whiter still, and the boys called my attention to it. At first I decided the plant had turned white because of the weak growth and lack of vitality; but at the same time I wondered if there was not a chance to get "White Plume" lettuce as well as White Plume celery, which has made such a stir in market gardening—thanks to Peter Henderson. The plant grew slowly; and when larger leaves appeared, some of them were mottled with patches of green; but the clear white was so strange for lettuce that we decided to try to get it to produce seed. In order to give it more room, it was transplanted to our annex greenhouse, that I have told you about, and no other plant was allowed within a foot of it on any side, although every foot of ground in the greenhouse is precious. It started to grow, and called forth not only the admiration of myself and the boys, but our occasional visitors; and I laughingly told several that I called the plant worth a hundred dollars just as it stood. Along in February, however, it suddenly ceased growing, and the leaves began to rot. Everybody supposed it had made up its mind to die; and I discovered, when the prospect was strong of losing it, just how much my heart had become set on that one lettuce-plant. I even thought of pulling off one of the best leaves and sending it to an expert man with cuttings, to see if he could not get a plant, and afterward some seed just from the leaf. Why should the plant die? Why do things die, any way? Now, dear friends, I want to confess to you right here, that I was foolish enough—if that is the proper word to express it—to ask God to bless my efforts in trying to make this little plant *live*. I didn't tell anybody about it but my wife, however; but I told her, for I felt as if it were one of God's gifts, and a very precious gift too, because, you know, lettuce has been such a hobby of mine; and if it were his gift, why should he not be pleased to help me to keep it, and give it eventually to the rest of you who love lettuce and love God? After praying about the matter I began studying on the old problem. Why can't plants grow, with plenty of daylight and every thing else except direct sunlight? What particular virtue can there be in the direct rays instead of having it filtered through cloudy mists? In the summer time our plants have more direct rays of the sun than they need, a great many times, and we are obliged to shade them. I dug down into the soil and examined the roots of other plants in health and in decline. I soon became satisfied that the beds in our greenhouse, and in the annex too, were too damp. The drainage was not sufficient, and there was not movement or motion enough in the air to dry out the soil continually, as it does outdoors. You know what I told you about trying to dry corn in the greenhouse. I took a transplanting-tube and made a deep round hole on three sides of my lettuce-plant. In 24 hours the ground, which had seemed quite wet at the bottom of these holes, began to dry a little on the surface, where it was exposed to the air, even down in the holes. The dull transparent white of the lettuce soon changed and looked fresh and lively. The plant grew, and I learned a lesson.* Well, the first seeds ripened by the middle of July. One of our boys planted them just as soon as they were firm enough to germinate; and a week ago the plants were up.

I wonder if any of you know how much I have enjoyed watching these tiny bits of vegetable life; and do you know with what nervous expectancy I have watched the little leaflets? Will they be white like the mother-plant, or only ordinary *Boston Market lettuce?* I thought of asking our friend Mr. W. J. Green, of the Experiment Station, Columbus, the question. You know he has written a good deal on this subject lately.

Well, dear friends, I am happy to tell you that the little leaves are *white*, much like the mother-plant, although few if any of them show as much white. They are mottled with green, but they are very handsome. In a few days more we shall select the finest plants—that is, showing the most white—and push them as hard as we can to have them make seed yet this fall; and pretty soon the White Plume lettuce will be in our hands, God's own gift to his children, and to those who love him. It seems to me I never had any thing before so straight and

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*A good deal of discussion has appeared in the agricultural papers in regard to just why *cultivation* makes plants grow. If you watch in the spring, when the water is drying out of the ground, you will find neither weeds nor any thing else makes a start until the ground begins to get dry and is capable of being pulverized—at least on the surface. Wet ground dries out more quickly where it has been cultivated than where it is not. Well, I am satisfied that one advantage of stirring the soil is, that it allows the air to pass through it and dry out the superabundant or excessive moisture. This is especially true in the greenhouse, where we do not have the brisk circulation that we do outdoors. Direct sunshine is much more important where this brisk circulation is wanting, or where cultivation is wanting; therefore perfect drainage, stirring the soil, or a brisk circulation of air, takes the place, to a certain extent, of *direct sunshine.*

direct from the hands of God the Father; and it was given to *me* too. The little gift seems to indicate that he has been pleased with what I have written you about plants, especially lettuce, celery, etc.; and it tells us too that he has many similar gifts in store for those who love him and care for such gifts.

What am I going to do with the seed? Well, under the circumstances it does not seem to me just right to make any traffic of them at all. If any of you care for a few at the present stage of proceedings, I will give them to you—say three or four seeds to each person, so as to make them go around. When the gift has been a little more developed, I propose to give little packages of seed to those who feel as I do about it—that it is a gift from God. Now, I do not care so much about the lettuce-plant; but I am satisfied of this one thing; yes, I have watched and waited, and seen it demonstrated, that these desirable traits in our flowers and vegetables may be perpetuated by encouraging the plant in certain directions. It seems as if that white lettuce-plant in the greenhouse said, in effect, as it unfolded its leaves: "Look here, my good friend A. I. Root, wouldn't you like to have some Boston Market lettuce *all over white*—white outside and white inside—a real delicate transparent white, like this?" Now, A. I. Root would have been dull indeed had he not understood. I am glad the plant came so near dying. If I had not prayed over it, and asked God to tell me how to make it live, I should not have cared half as much for it.

There, friends, is not my little story a good one, and doesn't it corroborate the truth of the little text I started out with—No good will he withhold from them that love him?

Wants or Exchange Department.

Notices will be inserted under this head at one-half our usual rates. All ad's intended for this department must not exceed 5 lines, and you must SAY you want your ad. in this department, or we will not be responsible for any error. You can have the notice as many lines as you please; but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale can not be inserted under this head. For such our regular rates of 20 cts. a line will be charged, and they will be put with the regular advertisements.

WANTED.—To exchange choice Italian queens for comb or extracted honey. Correspondence solicited. JAMES F. WOOD,
13tfdb North Prescott, Mass.

WANTED.—To exchange Italian bees for a first-class 48-inch bicycle or a foot-power turning-lathe. Engine lathe preferred. 14tfdb
D. S. BASSETT, Farnumsville, Worcester Co., Mass.

PARTIES having either Carniolan queens mated to Italian drones or Italian queens mated to Carniolan drones would do well to correspond with me. I want about 4 of these hybrids. 14-15-16d
T. K. MASSIE, Concord Church, W. Va.

WANTED.—To exchange 250 colonies of bees, for horses, mules, wagons, buggies, and 4 h. p. engine, or any thing useful on a plantation.
21tfd ANTHONY OPP, Helena, Phillips Co., Ark.

WANTED.—To exchange an American fruit-evaporator, No. 2, capacity 10 to 12 bu. per day; cost $75 at factory, for honey, supplies, or offers.
O. H. HYATT, Shenandoah, Page Co., Iowa.

WANTED.—To exchange turning-lathe, good as new, foot or power, with full set tools, and mandrel for saw or emery-wheel, for bees, fdn., boxes, chaff or Simplicity hives, and Novice extractor, or offers. L. W. NASH, West Kennebunk, Me. 15-17d

DO you wish to exchange extracted honey for supplies? If so, write at once to
15tfdb CHAS. H. SMITH, Pittsfield, Mass.

WANTED.—A well-bred bird-dog, English pointer preferred, in exchange for Italian and Holy-Land bees in S. hives, w. frames, and tested queens, also a Given die for L. frames.
15d JNO. D. ADAMS, Nira, Iowa.

WANTED.—To exchange warranted Italian queens, reared from imported mother, for fancy fowls, lop eared rabbits, Maltese cats, plants, roots, or offers. J. H. GARRISON,
15-16d 3969 Sarpy Ave., St. Louis, Mo.

WANTED.—To correspond immediately with parties having honey to sell. 15d
MODEL B. HIVE CO., W. Philadelphia, Pa.

WANTED.—To exchange for extracted honey, a 10 h. p. horizontal engine, worth $200. I will give somebody a rare bargain. Speak quick.
15tfdb C. H. SMITH, Pittsfield, Mass.

WANTED.—To exchange, good gold or silver watch, new, or choice nursery stock, for Italian bees, extracted honey, or bee-supplies—a good bargain to some one. My 60-page fruit-guide, 10c postpaid. J. B. ALEXANDER, Hartford City, Ind.

WANTED.—To exchange the Alderbrook Poultry Farm of 12 acres, buildings new, with 100 colonies healthy bees in improved hives, for desirable personal property. Location healthy and pleasant.
15d D. E. DARROW, West Eaton, N. Y.

WANTED.—To exchange a Barnes C. and S. saw for new honey or beeswax. J. C. MILLMAN,
15d Elk Grove, Wis.

WANTED.—To exchange bass drum and snare, new, for bees, Italians preferred, or any thing useful in the apiary. V. SMITH, Lapeer, Mich. 15d

WANTED.—To exchange Barnes combined saw, 2 patent adjustable steel planes, 500 one-piece one-pound sections, one sheet perforated zinc, etc., for a good article of honey. CHAS. DORFMAN,
15d Pittsburg, Camp Co., Tex.

"FEEDING BACK."

There was probably never before gathered together so much reliable information upon the above subject as is to be found in

THE BEE-KEEPERS' REVIEW

for July. If you have, or expect to have, unfinished sections, read this No. If you have failed to make a success of "feeding back," its perusal may show you where you made your mistake. The August issue will be a "Fair No." Price of the REVIEW, 50 cts. a year. Samples free. Back numbers can be furnished.

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A neat little book of 45 pages; price 25 cts. The REVIEW and this book for 65 cts. Stamps taken, either U. S. or Canadian. Address

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☞In responding to this advertisement mention GLEANINGS.

FOLDING BOXES. 10-21db.

Enclose your COMB HONEY in our Cartons. Prices Reduced for 1888. Sample 5c. 20 page Catalogue of Glass Jars, Honey Labels, etc., FREE. Send for it. Address
A. O. CRAWFORD, S. Weymouth, Mass.

☞In responding to this advertisement mention GLEANINGS.

NEARLY THIRTY TONS

—OF—

DADANT'S FOUNDATION

SOLD IN 1887.

It is kept for sale by Messrs. T. G. Newman & Son, Chicago, Ill.; C. F. Muth, Cincinnati, O.; Jas. Heddon, Dowagiac, Mich.; F. L. Dougherty, Indianapolis, Ind.; B. J. Miller & Co., Nappanee, Ind.; E. S. Armstrong, Jerseyville, Ill.; E. Kretchmer, Coburg, Iowa; P. L. Viallon, Bayou Goula, La., M. J. Dickason, Hiawatha, Kansas; J. W. Porter, Charlottesville, Albemarle Co., Va.; E. R. Newcomb, Pleasant Valley, Dutchess Co., N. Y.; D. A. Fuller, Cherry Valley, Ill.; J. B. Mason & Sons, Mechanic Falls, Maine; G. L. Tinker, New Philadelphia, O., Jos. Nysewander, Des Moines, Ia.; C. H. Green, Waukesha, Wis.; G. B. Lewis & Co., Watertown, Wis.; J. Mattoon, and W. J. Stratton, Atwater, O., Oliver Foster, Mt. Vernon, Iowa; C. Hertel, Freeburg, Ill.; Geo. E. Hilton, Fremont, Mich.; J. M. Clark & Co., 1409 15th St., Denver, Colo.; Goodell & Woodworth Mfg. Co., Rock Falls, Ill.; J. A. Roberts, Edgar, Neb., E. L. Goold & Co., Brantford, Ontario, Canada; J. N. Heater, Columbus, Neb., and numerous other dealers.

Write for *free* samples, and price list of bee supplies. We *guarantee every inch* of our foundation *equal to sample in every respect*. Every one who buys it is pleased with it.

CHAS. DADANT & SON,
3btfd **Hamilton, Hancock Co., Illinois.**

☞In responding to this advertisement mention GLEANINGS.

ITALIAN QUEENS.—Untested, 75 cts. each; 6 for $4.00; 12 for $7.50. Address
13-tfdb JOHN NEBEL & SON, High Hill, Mo.

Oliver Foster, of Iowa.

Italian bees, 60 cts. per lb. in July, to $1.00 in April. Pkgs. with queens, brood, etc., cheap. *No foul brood near.*

BEE SUPPLIES.—Best sections, cases, and hives. Catalogue free. Send 5 one-cent stamps for pamphlet, "HOW TO RAISE COMB HONEY,"—chuck full of practical information "in a nutshell."
4-15db Address OLIVER FOSTER, Mt. Vernon, Ia.

☞In responding to this advertisement mention GLEANINGS.

MUTH'S HONEY-EXTRACTOR.

SQUARE GLASS HONEY-JARS,

TIN BUCKETS, BEE-HIVES,

HONEY-SECTIONS, &c., &c.

PERFECTION COLD-BLAST SMOKERS.

Apply to CHAS. F. MUTH & SON,
CINCINNATI, O.

P. S.—Send 10-cent stamp for "Practical Hints to Bee-Keepers." 1tfdb

☞In responding to this advertisement mention GLEANINGS.

READ THIS!

I will sell one-story Simplicity hives with portico and a two-frame nucleus, with queen, golden Italian, tested, through the season, for $2.50. Untested queens, $1.00; $10.00 per dozen.

MRS. OLIVER COLE,
Sherburne, Chenango Co., N. Y.
Chenango Valley Apiary. 6tfdb

☞In responding to this advertisement mention GLEANINGS.

A RARE CHANCE IN CALIFORNIA.

FOR SALE.—My apiary, and fixtures for producing comb honey. A bee-range unexcelled in California. Nine acres of raisin grapes, $1000 worth of grapes now on the vines. A rare chance for a man of some means to get hold of 320 acres of government land. Address

J. P. ISRAEL,
13-16db **Olivenhain, San Diego Co., Cal.**

☞In responding to this advertisement mention GLEANINGS.

HOW TO RAISE COMB HONEY. See Foster's advertisement on another page. 4-15db

Green Wire Cloth,

FOR

Window Screens and Shipping Bees,

AT

GREATLY REDUCED PRICES.

The following lot of wire cloth is a job lot of remnants, and full rolls direct from the factory, that are FIRST QUALITY, and the pieces are of such variety of size as to furnish any thing you want. Price 1¾ cts. per sq. foot, for full pieces. If we have to cut the size you want, 2 cts. per sq. ft.

When you order a piece, and somebody else has got it ahead of you, we will substitute a piece the nearest in size to the one ordered, unless you specify in your order that you do not want us to substitute. The figures on the left indicate the width.

8	10 rolls, 67 sq. ft. each: 1 each of 66, 65, 64, 63, 63, 62, 54, 40, 27, 24, 22, and 4 sq. ft.
12	34 rolls of 100 sq. ft. each; 3 of 102 sq. ft.; 3 of 98, and 1 each of 97, 92, 75, 52, 48, 44, 43, and 28 sq. ft.
16	8 rolls of 133 sq. ft.; and 1 each of 132, 130, and 128 sq. ft.
18	6 rolls of 147 sq. ft., and 1 roll each of 153, 150, 148, 145, and 145 sq. ft.
24	22 rolls of 200 sq. ft. each.
26	92 rolls of 216 sq. ft. each, and 1 each of 215, 210, and 204 sq. ft.
28	44 rolls of 233; 3 of 224; 1 of 257 sq. ft.
34	13 rolls of 283 sq. ft.; 1 of 142 sq. ft.
36	5 rolls, 300 sq. ft. each; 1 each of 150, 150, and 150 sq. f.
38	21 rolls, 316 sq. ft.; 1 each of 633 and 300 sq. ft.
	1 roll, 42 inches, of 350 sq. ft.; 2 of 44 in., 366 sq. ft.; 1 of 46 in., 121 sq. feet.

THE FOLLOWING CLOTH IS BLACK.

40	4 rolls, 333 sq. ft. each.
42	9 rolls, 350 sq. ft. each.

A. I. ROOT, Medina, O.

JOB LOT OF POULTRY-NETTING.

Small Pieces at same Rate as full Rolls—⅝ ct. per Square Foot.

Two or more pieces, 5 per cent off; ten or more, 10 per cent discount.

You will notice in this lot some with heavier wire than No. 19, and some with smaller mesh than two-inch. Both of these are worth more at regular prices than two-inch No. 19; but as it is a job lot we put it all in at the same price.

Inches wide.	Inch mesh.	No. of Wire.	By dividing the number of square feet in this column by the width in the first column, you can ascertain the length of each piece. These figures give the number of square feet in each piece.
24	2	19	495, 445, 335, 330, 325, 285, 280, 240, 220, 180, 165, 160, 140.
60	2	19	No. 17 wire, 195.
60	2	18	750, 720, 672, 636, 618, 558, 510, 438, 270, 252, 222, 168, 168, 162, 162, 156, 156, 48.

We know of nothing nicer or better for a trellis for creeping vines than the above netting. A. I. ROOT, MEDINA, O.

CARNIOLAN · QUEENS.

Gentlest bees known; not surpassed as workers, even by the wicked races.

Imported queens, "A" grade, $8.00. Tested, $4.00. Untested, $1.00; ½ doz., $5.00.

Never saw foul brood. Ask on postal card for circular.

S. W. MORRISON, M. D.,
Oxford, Chester Co., Pa.

☞In responding to this advertisement mention GLEANINGS.

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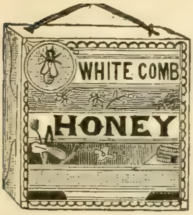
BEES, Queens, Hives, Given Comb Foundation, Apiarian Supplies, German Carp, Small-fruit Plants. Send for catalogue free. **E. T. Flanagan**, Belleville, Ills.
1-24db.

MUTH'S
HONEY-EXTRACTOR.
SQUARE GLASS HONEY-JARS,
TIN BUCKETS, BEE-HIVES,
HONEY-SECTIONS, &c., &c.
PERFECTION COLD-BLAST SMOKERS.

Apply to CHAS. F. MUTH & SON,
CINCINNATI, O.
P. S.—Send 10-cent stamp for "Practical Hints to Bee-Keepers" 1tfdb

☞In responding to this advertisement mention GLEANINGS.

PASTEBOARD BOXES
FOR ONE-POUND SECTIONS OF
COMB HONEY.



THIS box has a bit of "red tape" attached to it to carry it by. It makes a safe package for a single section of honey for the consumer to carry, or it can be packed in a trunk, if he wants. It can be opened in an instant. The price of the box is 2 cts. each, set up; in the flat, 15 cts. for 10; package of 25, 25 cts.; 75 cts. per 100; or $6.00 per 1000; 10,000, $55. If wanted by mail, add $1.00 per hundred for postage. Colored lithograph labels for putting on the sides, two kinds, one for each side, $3.00 per 1000. A package of 25, labeled on both sides, as above, 45 cts. By mail, 30 cts. more. They can be sold, labeled on one side or both sides, of course. We have only one size in stock, for Simplicity sections. Sample by mail, with a label on each side, 5 cts. If you want them shipped in the flat, labels already pasted on, the price will be ten cents per hundred for putting them on.

Your name and address, and the kind of honey, may be printed on these labels, the same as other labels. The charge for so doing will be 30 cts. per 100; 250, 50 cts.; 500, 75 cts.; 1000, $1.00.

A. I. ROOT, Medina, Ohio.

1888. 1888.
Pure Italian Bees and Queens
for sale in Full Colonies or Nuclei. Five L. frame nuclei a specialty. My queens and bees possess all the good qualities of the most desirable honey-bee. Send for prices.
WM. LITTLE,
6tfdb **Marissa, Ill.**
☞In responding to this advertisement mention GLEANINGS.

DADANT'S FOUNDATION FACTORY, WHOLESALE and RETAIL. See advertisement in another column. 3tfbd

HERE I COME
To say that E. Baer, of Dixon, Ill., has sold out his supply business to the Goodell & Woodworth Mfg. Co., who will sell V-groove basswood sections at from $2.75 to $4.00 per M. Other supplies correspondingly low. Samples and circular free. Address the **GOODELL & WOODWORTH MFG. CO.,**
3tfdb **ROCK FALLS, WHITESIDE CO., ILL.**
In responding to this advertisement mention GLEANINGS.

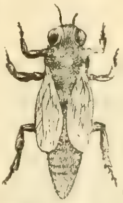
New Orleans Apiary.
I will mail guaranteed pure Italian queens for 75 cents each by return mail. Light, large, and prolific. Also Carniolan queens for $1.00 each.
12tfbd **J. W. WINDER, New Orleans, La.**
Care of L. B. Thompson, Jackson Pass. Agt.
☞In responding to this advertisement mention GLEANINGS.

J. P. Caldwell, of San Marcos, Tex.

Pure Italian queens.	April.	May.	Jun. to Oct.
Select tested	$2 75	$2 25	$1 75
Tested	1 75	1 50	1 25
Untested	1 00	90	75
Six untested	5 00	4 40	3 75
Twelve untested	9 50	8 00	7 00

All queens will be shipped in cages which answer the double purpose of an introducing and shipping cage. Address J. P. CALDWELL, San Marcos, Tex.
7-18db Please mention GLEANINGS.
☞In responding to this advertisement mention GLEANINGS.

LOOK HERE!



I will sell Italian queens from one of A. I. Root's imported queens. One untested queen, $1.00. Tested queen, $2.00. Select tested queen, $3.00. I also give a box of my pure vegetable liver pills free with each queen. Address
DR. L. L. LOOMIS,
6-17b Pemberville, Wood Co., O.
☞In responding to this advertisement mention GLEANINGS.

PURE ITALIAN QUEENS.
Tested, $1.25 each; untested, 70 cts. each; 5 for $3.00. All bred from a select imported mother. Safe arrival guaranteed by return mail.
15-16d **D. G. EDMISTON, Adrian, Mich.**

PURE Italian and Albino queens, $1.00 each.
15-16d GEORGE J. HALL, Rumney, N. H.

LOOK HERE, FRIENDS!
If you want to buy bees cheap, write for prices, as I have about sixty colonies that must be sold.
Address DR. G. R. JOHNSON,
Groom's Corners, Saratoga Co., N. Y.

DADANT'S FOUNDATION FACTORY, WHOLESALE AND RETAIL. See advertisement in another column

HONEY COLUMN.

CITY MARKETS.

BOSTON.—*Honey.*—We have no old honey in stock except extracted. We shall have some new next week and shall sell at 18c. BLAKE & RIPLEY,
Aug. 10. 57 Chatham St., Boston, Mass.

DETROIT.—*Honey.*—A little new in market, selling at 15@16 cts. *Beeswax*, 22@23. Stock not large, with moderate demand.
Bell Branch, Mich., Aug. 10. M. H. HUNT.

ST. LOUIS.—*Honey.*—At present there is but little honey coming to our market, and there is but little demand, except from outside points, for extracted. Common in bbls., to manufacturers, 4¼@4½. Choice white clover, 5½@6; cans, 6½@7. Comb honey, none coming in, and there will not be any before the first of Sept. W. B. WESCOTT & CO.,
Aug. 10. 202 N. Main St., St. Louis, Mo.

CHICAGO.—*Honey.*—Some of the new crop sold at 17c per pound, but very little doing. Extracted quiet. *Beeswax*, dull 20@22c. R. A. BURNETT,
Aug. 10. 161 So. Water St., Chicago, Ill.

ALBANY.—*Honey.*—The market is opening slowly for new crop. Weather too hot yet. We quote: Light small combs, new, 13@15; light extracted 6@8.
H. R. WRIGHT,
Aug. 10. Albany, N. Y.

CINCINNATI.—*Honey.*—There is no life in the honey market. Comb honey is very dull, and prices nominal; 12@15c is asked in the jobbing way. Demand is fair for extracted honey, which brings 5@8c on arrival.

Beeswax.—There is a good demand. Good to choice yellow brings 20@22 on arrival.
CHAS. F. MUTH & SON,
Aug. 8. Cincinnati, Ohio.

KANSAS CITY.—*Honey.*—We quote: New white, 1-lb. comb, 18@20; same in 2-lb. comb, 15@16. California, 1-lb. comb, 18; same, 2-lb., 15. Extracted, white, 8; amber, 7. No beeswax.
CLEMONS, CLOON & CO.,
Aug. 10. Kansas City, Mo.

ST. LOUIS.—*Honey.*—There is no material change in market, prices remaining steady. Honey is scarce and in good demand.
Aug. 10. D. G. TUTT GROCER CO.,
St. Louis, Mo.

Who will furnish me 500 lbs. old honey, the cheapest, either Northern or Southern? L. J. TRIPP,
Kalamazoo, Mich.

Wants or Exchange Department.

Notices will be inserted under this head at one-half our usual rates. All ad's intended for this department must not exceed 5 lines, and you must SAY you want your ad. in this department, or we will not be responsible for any error. You can have the notice as many lines as you please; but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale can not be inserted under this head. For such our regular rates of 20 cts. a line will be charged, and they will be put with the regular advertisements.

WANTED.—To exchange choice Italian queens for comb or extracted honey. Correspondence solicited. JAMES F. WOOD,
13tfdb North Prescott, Mass.

WANTED.—To exchange Italian bees for a first-class 48-inch bicycle or a foot-power turning-lathe. Engine lathe preferred. 14tfdb
D. S. BASSETT, Farnumsville, Worcester Co., Mass.

PARTIES having either Carniolan queens mated to Italian drones or Italian queens mated to Carniolan drones would do well to correspond with me. I want about 4 of these hybrids. 14-15-16d
T. K. MASSIE, Concord Church, W. Va.

WANTED.—To exchange Cuthbert raspberries for tame pigeons. J. B. MURRAY, Ada, Ohio. 16d

WANTED.—An honest and capable young man who has had some practical experience in the bee business, that would like to buy a half-interest in an established apiary of 250 hives of bees, and bee-house, cellar, extractors, etc. I have also probably 400 hives of empty comb, 200 of them extra thick combs, that have been used in extracting, which are valuable to those who know their worth. Will sell a half-interest in all at a very low price to the right kind of a man.
16-17-18 O. R. COE, Windham, N. Y.

WANTED.—To exchange S. B. shotgun, Mrs. Cotton on bee culture, and A B C of Bee Culture, for books on Bible readings and Bible study, or other books appropriate for a young Christian to read.
16d WM. ELWICK, Decorah, Ia.

DO you wish to exchange extracted honey for supplies? If so, write at once to
15tfdb CHAS. H. SMITH, Pittsfield, Mass.

WANTED.—To exchange warranted Italian queens, reared from imported mother, for fancy fowls, lop-eared rabbits, Maltese cats, plants, roots, or offers. J. H. GARRISON,
15-16d 3969 Sarpy Ave., St. Louis, Mo.

WANTED.—To correspond immediately with parties having honey to sell on commission.
MODEL B. HIVE CO., W. Philadelphia, Pa.

WANTED.—To exchange for extracted honey, a 10 h. p. horizontal engine, worth $200. I will give somebody a rare bargain. Speak quick.
15tfdb C. H. SMITH, Pittsfield, Mass.

WANTED.—To exchange Cuthbert raspberry-plants for nursery stock, Italian queens, fowls, etc.; also bee-keepers' supplies (new), for machinery, honey, or offers. C. W. COSTELLOW,
16-17 Waterboro, York Co., Me.

WANTED.—To exchange full colonies of bees, $5.00, for poultry, seeds, tools, honey-boards, fdn., sections, F. P. saw, or any thing I can use on farm or apiary. W. H. LAWS, Lavaca, Ark.
16tfdb Ex. Office, Ft. Smith.

WANTED.—To exchange one Stanley Automatic extractor, two-frame, Langstroth size, for Bancroft's Standard History of the United States, or for colonies of Italian bees. ROBT. QUINN,
16d Shellsburg, Benton Co., Iowa.

WANTED.—To exchange one good as new Challenge windmill. It has been used but 30 days. I bought it on trial, and will sell very reasonably or exchange for bees or bee-supplies. 16d
S. RAY HOLBERT, Watson, Marion Co., W. Va.

WANTED.—To exchange bees for B-flat tenor trombone or cornet. L. J. TRIPP,
16d Kalamazoo, Mich.

CARNIOLAN QUEENS.

From the best honey strain, at prices to suit the times. Send for descriptive price list, giving honey-record, management, etc.
H. F. SHANNON.
16-17-18d *Box 56.* *Clarksburg, Ind.*
☞In responding to this advertisement mention GLEANINGS.

UNTESTED queens, 50 cts.; 6 for $2.50. Tested, $1.00; 6 for $5.00. Select tested, a few at $1.50. My queens are all raised from select stock. Safe arrival guaranteed. WM. BARTH,
Petersburg, Mahoning Co., O.

Unparalleled Offer!

Selected tested queees for June, July, and Aug., only $1.00; 2-frame nuclei, sel. tested queens, $2.50 each. If you mean business, address, for what you want, S. F. REED, N. Dorchester, N. H.

DADANT'S FOUNDATION FACTORY, Wholesale and retail. See advertisement in another column. 3btfd

GLEANINGS IN BEE CULTURE.

DEVOTED TO BEES, HONEY & HOME INTERESTS.

Vol. XVI. **AUG. 15, 1888.** **No. 16.**

TERMS: $1.00 PER ANNUM, IN ADVANCE; 2 Copies for $1.90; 3 for $2.75; 5 for $4.00; 10 or more, 75 cts. each. Single number, 5 cts. Additions to clubs may be made at club rates. Above are all to be sent to ONE POSTOFFICE.

Established in 1873.
PUBLISHED SEMI-MONTHLY BY
A. I. ROOT, MEDINA, OHIO.

Clubs to different postoffices, NOT LESS than 90 cts. each. Sent postpaid, in the U. S. and Canadas. To all other countries of the Universal Postal Union, 18 cts. per year extra. To all countries NOT of the U. P. U., 42 cts. per year extra.

THREE WAYS OF WORKING FOR COMB HONEY.

FRIEND DOOLITTLE BRINGS SQUARELY BEFORE US A MATTER OF CONSIDERABLE MOMENT TO HONEY-PRODUCERS.

THE usual mode of working for comb honey is what is known as the "tiering-up system," and without doubt there are more who use this system than there are of those who use all other systems combined; yet this does not certainly make it true that this plan is the best one there is, by any means. It often happens that the majority is not in the right, and so after I had proven, to my entire satisfaction, that there was a better plan to work on in raising comb honey than the tiering-up system, I forsook the same and turned my attention to other plans. My chief objection to the tiering-up plan was, that not so much honey could be obtained by using it, and, worse than all the rest, if the utmost care was not used, the result would be lots of unfinished sections in the fall. These unfinished sections have been an "eye-sore" to all the users of this plan, as the immediate past will testify, for many are so disgusted with them that they recommend that they be burned up, while a whole issue of one of our bee-periodicals is used in telling how to save them by way of feeding back extracted honey, in order to get them filled.

The next system most in use is what is termed the "side and top storing plan combined," which I adopted upon leaving the tiering-up plan. By the use of this plan, more honey can be obtained than by any other plan I know of, except by using the lateral plan, of which I shall soon speak. The trouble with the side and top storing plan was, that it required much work; yet as I go over the results of the past while using it, I am convinced that the extra amount of honey obtained by the use of it more than paid me for all the extra work the plan required, over the tiering-up plan. An average yield of over 80 lbs. of comb honey per colony, for a period of 15 years, is a record never attained by any of the advocates of that plan. A few years ago D. A. Jones came out with a wholly side-storing plan, the young brood to be kept in the center of the hive by means of perforated zinc, while the sections were to be placed between that and the older brood, which was to be kept on the outside. One trial of this proved, so far as I was concerned, that the plan was fallacious; and although he told us he would explain, some years ago, I have never seen a word from him on the subject since; hence I have not enumerated this in the above three plans at all. While working with the side and top storing plan, I left a passageway under the side boxes, so that any bees which might be scattered around over the top and side of the hive, after any manipulation, could get back to the cluster instead of dying there, as is the case where no means of outlet is provided. This caused many to write me, asking if I meant to have this so; "for," said they, "the bees will go around under these side boxes up into the cap over them, and build comb there, which they fill with honey." I told them that this was as I wanted it, giving the reasons for so leaving it, and telling them if any colony so persisted in doing, to give more room by adding sections at the sides. Well, I often got caught in this same fix myself, when I would be a little tardy in keeping up with the bees, so that I have often had from five to fifteen pounds of honey built in the cap of the hive, the bees having to travel from 25 to 30 inches entirely away from the brood to get there. This leaving the brood and storing honey in such amounts in the cap led me to adopt what I term the "lateral" plan of obtaining section honey, which plan gives me fully as much honey as could be obtained by the side and top box plan, with as little work as is required when using the tiering-up plan. The larger part of my hives are of the kind known as the "chaff hive," which gives plenty of room on top for all the room required by the largest colony, without tiering up. Over the top of these hives I have placed a queen-excluding honey-board, the queen-excluding part going over only the brood-apartment to the hive, the rest being a thin board to cover up the chaff. When the honey season arrives this is put on (quilts being used, together with sawdust cushions up to this time), and from three to five wide frames holding four 1¼-pound sections each are placed directly over the brood. As soon as these are well occupied with bees at work I add one or two wide frames at each side; and when these are occupied I add enough more to cover the top of the hive, if so much room is needed. In this way I accommodate the size of the colony with the needed room, neither giving too much nor too little, as must of necessity occur where the T super and others of a set capacity are used. As soon as the first that were put on are filled, they are taken off (handling by the wide frame only, so five pounds are handled instead of single boxes), when the partly filled sections at each side are slid along on the honey-board till they come together in the center, when the empty ones are placed at the sides. As the honey season draws to a close, no more empty sections are put on, so that, when the season is over, I often have but one or two wide frames of sections on the hive, thus doing away with more partly filled sections than I really need for bait sections the following season.

In the above, all will see that I have all the advantages of both the former plans combined, and that, so as to work to the very best possible advantage. Well, just as I had this all wrought out, and have worked it to my entire satisfaction (often using the whole complement of wide frames over but 5 Gallup frames below), for the past two seasons, what should friends Root and Miller do (see page 553 of July 15th GLEANINGS) but upset the whole thing? Now, gentlemen, in all candor I ask, Did either one of you ever fully test the matter you are there talking about, or have you reasoned it out in theory, and told us that such and such would be the facts? If you have fully tested the matter, please tell me how it came about that my bees will thus work to advantage, and would go even two feet or more entirely away from the brood, and there work, apparently as well as anywhere. G. M. DOOLITTLE.

Borodino, N. Y.

Friend D., I am very glad indeed to hear that your experience has been as you indicate; and I hope it will transpire that both myself and Dr. Miller are wrong. During the height of the basswood season, when we have such warm days and warm nights that the bees are inclined to get out of the hive, or into some place that is cooler, I can readily imagine they will go two feet away from the brood to store honey. Now, is it not true that the biggest part of your honey comes from basswood, and that this accounts for your experience in a measure? We often have clover honey in the latter part of May or the first of June, when both days and nights are comparatively cool. Under such circumstances our bees show a decided aversion to getting away off from the brood; and it is from many years of experience that I have decided to get comb honey as near the heart of the brood-nest as we can. Because the L. hive offers such facilities for getting our sections right down almost into the heart of the brood-nest, is why I have always believed it to be the best hive for securing comb honey. Having a lot of unfinished sections to hold over is certainly a great drawback, and your plan is one of the best, if not the very best, for avoiding it. Are we to understand that you have entirely discontinued the use of side storing? If you have, then we are one step nearer toward having a unanimous decision that side storing in connection with top storing, is not desirable. I did not know, until I read the above, that you had adopted so much of what we call the chaff hive. Years ago I decided that it was the best and simplest arrangement for keeping bees, winter and summer, having every thing ready for comb honey. Where you place so many sections on top of the brood-nest that they extend over beyond the brood-combs, it seems to me that something equivalent to a chaff hive would be a necessity—that is, if there are no live bees under these sections which extend over, they ought to be blanketed or protected in some way from the changes of the weather.

THE SHAW HIVE.

BROTHER ROOT:—Why should you think that "it is a little odd that Shaw, in undertaking to make a movable-comb hive, concluded from what he knew of bees that they would wax and gum the frames so fast to the hive they could not be taken out"? With his uprights fitting close to the front and rear walls of the hive, how could he well come to any other conclusion? Mr. Chas. Dadant (see *A. B. J.*, 1872, p. 197) says of the Debeauvoys hive of 1847: "The frames were as broad as the interior of the hive; i. e., close fitting at the sides. . . . The hive worked well when new and empty; but after the bees had glued the frames, it was difficult to remove them without breaking the combs. It would have been entirely impossible to remove them at all, *without separating the ends of the hive from the frames with a chisel.*" The italics in the above are mine. From Mr. Shaw's deposition, taken in the suit of Otis vs. King, it appears that he used a metal case with double metallic water-tight walls; that the cover of this case was a metallic reservoir to hold a fluid for drowning the bee-moth; that he made only one hive; that he never got any honey from it; that the first two colonies which he put into it deserted it; that the last one died in it; and that, becoming discouraged, he laid it aside. It seems to have benefited neither himself nor the public. Certainly no one who has ever used an improved Huber hive but would prefer it, either for amateur or practical uses, to the

Shaw device. If our friend Heddon allowed the bees to get the same access to his close-fitting uprights as Debeauvoys and Shaw did, he too would need hot water or chisel to remove his frames from the hive. L. L. LANGSTROTH.

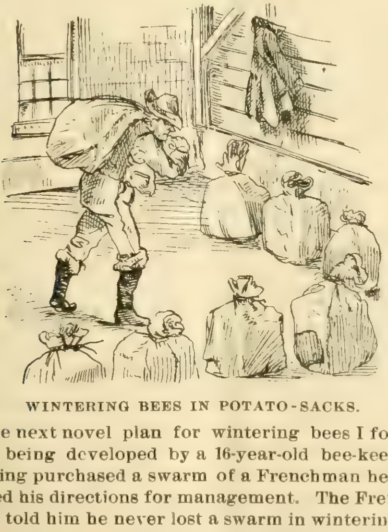
Dayton, O., August 8, 1888.

RAMBLE NO. 5.

SOME MORE NEW DISCOVERIES.

FROM Mr. Crane's we made a rapid retrograde movement to Mr. Parent's; then dinner and farewells. Then as we journeyed along, regrets were frequently expressed that we could not call upon other bee-men in other portions of Saratoga Co. We regretted that we could not stop a week in Saratoga and partake of the waters and the pleasures; also that we could not visit Mt. McGregor, whose brilliant electric lights beamed down upon us and reminded us of the brilliant and useful career that was ended there.

Another night with Mr. P. and wife, and again the Rambler found himself on the road toward the rising sun. Crossing the noble Hudson we were soon in the town of Easton. This town is noted for its wealthy and intelligent farmers. It is a strictly agricultural town, and owes its thrift perhaps to the fact that many of its inhabitants are Quakers. There is no extensive bee-man in this town, but we found a man who practices a novel method of wintering his bees. This gentleman is a potato-grower, and ships his product to market largely in large burlap sacks. When cold weather approaches he puts each hive in a sack, ties it up, and deposits it in a light room in his dwelling. The porous sack gives them plenty of air, and at the same time prevents the escape of bees. If they come out they have the sack to travel around upon until they get tired, then of course they go back into the hive. I can not vouch for the success of this method, as I have not heard from the inventor since the advent of warm weather. This method may aid Bro. Bingham in his "light" theory for cellar wintering.



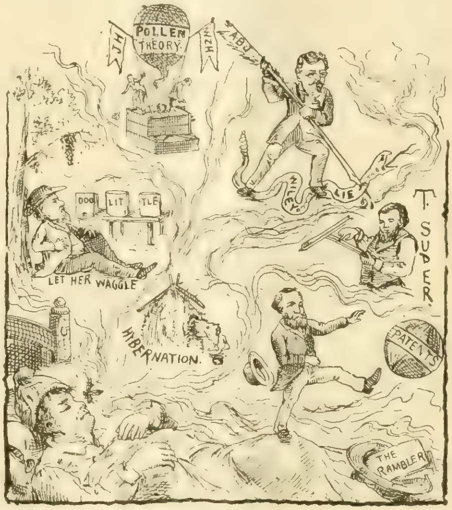
WINTERING BEES IN POTATO-SACKS.

The next novel plan for wintering bees I found was being developed by a 16-year-old bee-keeper. Having purchased a swarm of a Frenchman he followed his directions for management. The Frenchman told him he never lost a swarm in wintering, if the hive was placed upon a wagon-wheel. The young novice followed directions; and what was the surprise of the father to find nearly all of his wagon-wheels arranged in an upper room, and hives placed upon them!

"For the land's sake, Brodie, what are you going to do if you get a hundred swarms?"

"Why, dad, I can borrow wheels of the neighbors, or I can hire a wheel for a pound or two of honey, and it will pay; for the Frenchman said it's a sure way to winter bees."

After the Rambler's amusement subsided, a sober second thought led us to believe that the boy was only acting out the modern bee-keeper's spirit. Looking over the field we found nearly every prominent bee-man hanging on to his wagon-wheel. Doolittle's wheel is nature; Heddon's is pollen; W. F. Clarke, hibernation; A. I. Root, anti-patents; Miller's, T supers, etc.



OUR RESPECTIVE WAGON-WHEELS.

Our dreams that night as we rested under the roof of a cousin's residence were filled with floating visions of wheels, potato-sacks, balloons, etc. Here is a mental photograph of the sublime scene.

THE RAMBLER.

Now, friend R., that is really too bad. I was prepared to accept the fact that the rest of you have had at different times various wheel hobbies; but to put A. I. Root among the crowd touches a tender spot. Never mind; I believe I would rather be pictured bouncing patents (that is, the individual-right department) than anywhere else. J. H. and W. Z. H. seem to be pretty near the top of the heap, with the pollen theory and new revolutions of hives. The editor of the *A. B. J.* is represented next as very industriously fighting the "Wiley lie," and we are glad he has finally got it under foot. C. C. Miller is still enthusiastic on T supers, even if there is not any honey to fill supers of any kind, during this poor season. Doolittle is taking things very philosophically under the shade of a tree. Even if there is a swarm hanging on the limb overhead, he does not propose to disturb himself until he gets ready. By the way, I wonder if he is going to get a crop of honey this year. Our irrepressible neighbor Shane brought us yesterday a sample case, and coolly informed us that he has about 2000 lbs. But we have not got through with the picture yet. Just beneath friend Doolittle we see a colony fixed for hibernation. I guess it must be under a strawstack. Our good friend W. F. Clarke, however, does not seem quite satisfied to "let 'em hibernate" after nature's fashion, for he has removed his plug hat, and our artist has taken him in the act of poking his head into the strawstack, to see how things are going. Very likely it is all tranquil. The Rambler, tired out by the adventures of the day, is sleeping the sleep of the just. We know it is the Rambler himself, for he has put his hat on the foot of the bed, and deposited his documents inside of it.

WHAT CAN WE DO DURING THE LATTER PART OF AUGUST?

IN OTHER WORDS, IF NO HONEY IS COMING, WHAT ELSE CAN WE DO?

In the first place, August is the great month for putting out strawberries, and I never before knew of so beautiful an August for putting out strawberry-plants as the one we are now having. In our locality we have abundant rains right straight along, as often as once in three or four days, and a good deal of the time much oftener. I need not go into details about setting strawberries, for friend Terry and others have told us all about it. Briefly, work up your ground fine and mellow, putting on all the manure you can rake and scrape. Fit the ground, in fact, just as you would for a good crop of corn, and then get your plants of your neighbors, if you are not prepared to get them from your own grounds. The transplanting-tubes work most beautifully. The young plants grow exactly as well out in a field of mellow ground as they do in the bed before they were moved; and runners that were started on the little plant when it was taken up keep right on growing after it is set out in the field. We have hundreds doing just that very thing now. If you want a big crop of fruit, however, cut off every runner. Keep out the weeds, and cultivate the plants just as you would any other choice crop. One great expense of strawberry culture is weeding out the old beds. Well, if you get a good strong growth in the fall, you will get a good crop of fruit next season; and after the fruit is taken off, you can (if you choose) plow your bed under, and plant more strawberries or some other crop. This is Peter Henderson's method of raising strawberries, so as to dispense with the enormous expense of labor in weeding them through the fall. Raspberries can also be planted in August when we have plenty of rain. There is usually spare time during this month so we can afford to do the work extra well; and having the work extra well done is what gives great crops of all kinds of berries. Asparagus-beds can also be made in the fall, and it is much better to put them in early so as to have them make a start, on account of the danger of being thrown out by the frost. Wax beans, if planted at once, will give a fair crop, unless we have very early frosts. A great many times they bring a good price, especially when they come into market at a season when they are comparatively a novelty. A good many people use them for pickles, when they are brought on late. Early beets sown now will make a very good size for table use, if the season is favorable; the same way with carrots. If you can find large strong plants, a very good crop of celery may be obtained by setting them out during the last of August. A few days ago we set out some plants that were so large they would have done very well for the table had they been bleached. To my great surprise, these great big plants stood up and started to grow, a good deal better than the small plants. And I have invariably succeeded best with very large celery-plants, say those that stand up a foot or more high, and are as big around as your wrist, just above the roots. Crosby's extra-early corn, in favorable localities, if planted at once, will probably give roasting-ears. We have been much surprised this season to find Crosby's Early not only the earliest corn by about ten days, but the ears are large, well filled, and, best of all, the quality is nearly if not quite equal to any of the later kinds. Perhaps the abundant rains and the extra rich soil have had something to do with it. Almost every season a lot of people are wanting pickles after the frost has killed them off. Well, sow some seeds now in your cold-frames, and put on your sash when frost comes, and you will have a nice lot of pickles for those who are always a little too late in their wants. Now is the time to raise lettuce for fall use. See page 306. Friend Terrell got $10.80 for the lettuce that grew in a cold-frame only 12 feet square. Your nearest large town would probably take it off at equally good prices, unless too many others undertake to supply the fall market. Now is the time to pull your Egyptian, or winter onions. Separate them and plant them in rows a foot apart, and six inches apart in the row. When cold weather comes they will be just right to move into the greenhouse. See page 176.

American Wonder peas, if planted now in good soil, will furnish green peas when nobody else thinks of having them. Last season we had quite a brisk trade in radishes sown the last of August. A butcher-shop belonging to a neighboring town used to send out to us once a week for celery, and they used large quantities of radishes in October. Now is the time to sow winter radishes. Spinach sown now in good ground will make a good crop for use during November and December; and in many localities it may be cut any time during winter when there is a thaw. We had some very handsome spinach last December, and even into January, and it sold at good prices. We expected to have it winter over, and therefore used it sparingly; but the freezing and thawing in March spoiled it all, although we tried mulching it light and mulching it heavy. Hereafter we shall sell it whenever it is nice and people call for it. Last, but not least, you can get beautiful turnips for table use if sown at once. The Purple-top Globe we place at the head of the list for fall sowing for the table. Even if they do not get very large, they are handsome and excellent. Even quite heavy frosts do them no further injury than to make them still sweeter.

JOHN'S VISIT TO DR. MILLER'S HOME.

HOW THINGS LOOK "OUT WEST."

AGREEABLY to my promise in the last number, I will now tell you something of my visit to the home of Dr. C. C. Miller, who is so well known to the readers of GLEANINGS. My time for these visits was so limited that I had to do my traveling during the night. Leaving Mr. Dadant in the afternoon, I reached Chicago the next morning at 7, and had to make another depot half a mile away in 15 minutes in order to catch the early train for Marengo. I was soon speeding on my way out of the populous and busy city of Chicago. The first object of interest was the little town of Elgin, so well known for its famous watch-factory. This establishment is to that town very much what the Home of the Honey-Bees is to Medina, although on a much more extensive scale than ours. We were about a couple of hours in reaching Marengo, where I met the doctor's genial face watching for me at the depot, for I had previously dropped him a postal that I should reach there that morning.

Marengo is a very pleasant little town of 1200 or 1500 inhabitants. Shade-trees line the streets, saloons are conspicuous by their absence, and schools and churches hold a prominent place. Doubtless the main reason for the town looking so attractive is the absence of King Alcohol and his train of vice. Such towns are becoming more and more numerous in our land, for which we have reason to thank God, and I think we have reason, too, to thank our law-makers. It is true, they may not be making the progress that many people wish they might; but I fear the same people forget too often that, as great bodies move slowly, so this fight against intemperance is a stupendous one, and takes a great while to accomplish what we are aiming at. The fact that these local-option towns are growing more and more numerous is a hopeful sign of the glad time when the liquor-power will be broken.

The doctor's home is about three-fourths of a mile out of the village, situated on rising ground, with a row of basswoods up the lane to the house. It is a very pleasant home, surrounded by fruit-trees and foliage on almost every side. The apiary is south of the house, down under the apple-trees, and it seemed to me as if they had too much shade, if any thing, but I presume they get used to these shady nooks just as they do to any thing else. I received a warm welcome from Mrs. Miller and sister Emma, who are always glad to see or hear any thing from the Home of the Honey-Bees, so the doctor says, and I was soon made to believe it too. When we drove up to the house we heard a swarm in the air, and the doctor at once brought a couple of bee-hats, such as were shown in the picture in GLEANINGS, page 249 of last year, where the doctor was taking sections from the T super. These hats had a veil sewed on the brim. They had been in the rain so that the brim came down well to shade the face and neck; in fact, the one he gave me came nearly resting on my shoulders, and was a little too much shade for my eyes. I presume the ladies prefer such an arrangement as a prevention from tan. While in the apiary three swarms issued; but as the doctor has all his queens clipped he does not have much trouble in climbing trees to get them, because the swarm comes back to the hive very soon after going out. He has been working ever since he has kept bees, trying to devise some means to prevent swarming, but has not succeeded as yet. He mentioned one incident in connection with swarming that I had not noticed, though perhaps many of you have. He said he did not believe he ever knew a swarm to issue when they had no honey in the hive, unless, of course, in a case where a swarm starved out in the early spring; but as it would be quite impossible to keep such a condition of affairs in our hives, I suppose we shall always be bothered more or less with swarming. The doctor was getting no honey, as usual (at least it begins to seem to him " as usual"), for this is his third poor season. Only the baits which he had put into the supers had been filled, and but few of these had been capped over. He has a bee-cellar near the apiary, where the bees are wintered, and above the cellar is a room for storing supers and sections, and a general workshop. In this was a great pile of supers filled with sections waiting for the honey-flow. Many of them have waited since a year ago last winter. Still the doctor is not discouraged yet. An all-wise Providence rules, and doubtless He knows best.

After a pleasant noonday repast with the family we drove to the Belden apiary, east of Marengo about two or three miles. There were not so many bees here as he had the past season, and they were doing very little at gathering honey. His plan of arranging hives in the apiary is a model one, I think. I believe it has been detailed in GLEANINGS before, but it will bear mention again. The hives are placed in rows about 8 feet apart, and in each row the hives are clumped together in groups of four, two hives facing west close together, backed up against two facing east, and the distance between the clumps is about four or five feet. In this way I believe you can get more hives on the same area of ground with less confusion to the bees in finding their location than by any other arrangement. The doctor uses ten-frame Langstroth hives, and practices putting two swarms into one hive for winter. With this arrangement of the apiary he can do so without confusing the bees in the least. By simply putting one double hive in the place of two single ones with a swarm in each side, and a tight division between, the bees will find their entrance just as naturally as though there were two hives there.

As my time was limited, we had to hurry back to the station to meet the afternoon train. The doctor and his family made my visit so pleasant that I hope to be able to go again and stay longer.

THE T-SUPER FEEDER TRIED.

DR. C. C. MILLER TELLS US OF BEES THAT WOULD NOT TAKE THEIR FEED.

It may be remembered that I invented a feeder to go in the T super, which I described in GLEANINGS, p. 304, April, 1887. At that time I had not tried it. I had ordered stuff for 50 feeders, expecting to need them for spring feeding. It turned out that I didn't need them for spring, so they were not made up till fall. The harvest was the poorest ever known here; and when clover ceased to bloom, my bees had empty combs; but I was persuaded that they might fill up on later flowers, so they were left without feeding. I did not get to feeding till the last of September. Then the feeders were put on, perhaps half a dozen, by way of trial. After 24 hours the syrup wasn't lowered any, and I couldn't make out that the bees were touching it. I had put the feeders on the honey-boards, to prevent building comb next the feeder. Then I took off the honey-boards, and put the feeders directly over the frames. A day passed—two days, and the feed was still untouched. I felt blue. I am not sure that I ever felt so blue about bees since I commenced keeping them. Here it was the first of October, several colonies already starved to death, and the feeding that ought to have been done in August not yet commenced, and not one colony in fifty provisioned for winter. Do you wonder I felt blue? To add to my comfort, I saw before me the delightful task of sending to GLEANINGS an article beginning, "Write me down an ass," telling that the feeder which I had so highly praised, without knowing any thing about it from actual use, was an utter failure. I think I have not been very much given to telling about what "great things I am going to do," and I think I shall hardly be caught again in the same way. Well, I announced to the family that we must rig up to fill syrup into empty combs, in the old-fashioned way. They looked aghast! To go through the muss of filling some 4000 lbs. of syrup into combs, when they had been told how much nicer and easier it would be to use the new feeders. I told them it was only what they might naturally expect from having such an idiot in their midst. They begged for just a little fuller trial. Perhaps if more feed were used, or if it were given warmer, the bees would take it better. Again I went to look at the feeders, and, sure enough, a few bees were at work in them. The weather had commenced to change, and the very cold spell that had lasted through the last days of September gave away to seasonable fall weather. And yet, even when days quite as cold came afterward, the bees did not seem so determined not to be roused up. It seemed as if those last cold September days, immediately succeeding warmer weather, made the bees think it was time to settle down for winter. So I concluded that the feeders were all right, and the weather had made the trouble. There was no difficulty in getting a strong colony to take its 20 lbs. of feed inside of 24 hours. After feeding over 4000 lbs. of syrup with these feeders, I was ready to say that they were "all my fancy painted" them. The syrup was fed very hot, about 175°. A few bees were, I think, scalded by it, but the advantage more than paid for them. There was no trouble from comb-building, as Mr. Root feared. In some cases the bits of black comb on the top-bars were extended to the feeder, but never to make any trouble. Whether more trouble might not occur from comb-building early in the season, I am not prepared to say. I think I should then use honey-boards, and it might be well to have the bottom of the feeder come down to within ⅜ of an inch from the honey-board. I made the joints all tight by waxing. This is quickly done. Heat beeswax and rosin, equal parts, very hot. Pour two or three tablespoonfuls in one corner. Then turn the feeder so as to let the hot wax run quickly to the next corner. Then start to pour it out; but before the first drop runs out, change your mind and let it run back again and run to the next corner, which serve the same way. Continue thus till you reach the corner at which you started, and then pour out the wax. If you moved lively, had the wax hot enough, and *enough of it*, you will have only a thin coating left on the surface, and the cracks nicely filled. The feeders were made exactly as I described them, except that, instead of nailing on a little strip of wire cloth I took a strip 1⅜ inches wide, and as long as the inside length of the feeder, bent it over a stick in the form of a square trough, then pushed it, stick and all, into its place in the feeder. The stick was then drawn out by a string previously tied to it. I almost forgot to say that there was no trouble about robbing. Every thing was made snug-fitting about the hives. In one case some bees squeezed their way under a badly fitting super cover, and were drowned for their pains. I think the greatest objection to the feeder is, that so many nails are used that it takes quite a while to make one. Since the above was written, Prof. Cook made me a delightful little visit, and examined my new feeder very carefully. If I am not mistaken, he pronounced it the best he had ever seen, *if* the bees could take the feed fast enough. I told him a strong colony had taken 20 lbs. in 24 hours, which he seemed to think sufficient.

C. C. MILLER.

Marengo, Ill.

Why, friend M., why didn't you drop a little of the warm feed over the top of the frames and down into the cluster, and up along the side of the feeder? I should have supposed that a man of your experience would surely have known how to make a colony of bees boil out and get excited, and crawl all over the hives, even if the weather were cool. Some writer, away back it the old *A. B. J.*, tells us that we can often make a swarm come off where the bees have made preparations to swarm, by pouring a teacupful of warm honey at short intervals over the frames and down through the cluster of bees. I have often made them boil out of the hives by so doing, but I never succeeded in making them swarm. I am very glad you succeeded in getting them to take 20 lbs. in 24 hours. That is certainly pretty rapid feeding.

GEO. E. HILTON.

BIOGRAPHICAL SKETCH BY MRS. HILTON.

MR. GEO. E. HILTON was born in Bedfordshire, England, Aug. 25, 1846. His parents came to America in Oct., 1851, and lived for two years in Medina Co., O., in the towns of Brunswick and Medina, and Royalton, Cuyahoga Co. In 1853 they moved to Berea, and lived there until the fall of 1856, when they moved to Hillsdale Co., Mich., and settled on a new farm where his father and mother are still living comfortably in their old age.

Mr. Hilton did not like farm life, and at the age of 17 commenced to learn the building business, completing his apprenticeship at 21. Long before this he was attracted to bees, and found many swarms in the woods of Southern Michigan, and always said that, when he had a home of his own, he would have "tame bees."

GEO. E. HILTON.

In the fall of 1870 he went to Missouri, remaining 5 years in Missouri and Kansas, except one summer in Illinois, always following the business of contracting and building. Aug. 16, 1876, found him at Fremont, Mich., to superintend the building of the union schoolhouse. In this town he married and settled. His wife, learning of his desire to keep bees, made him a present of his first colony. He bought another, and that was the "nucleus" of the Red, White, and Blue Apiary. During the past few years he has made rapid strides in bee culture, and there is no one he gives more credit to for his success than his friends A. I. Root and Prof. A. J. Cook.

He now owns and has the management of 225 colonies of bees; and while he was not attracted to the farm, he has always taken an interest in rural industries, having written for different agricultural papers, and organized and is secretary of the "Newago Co. Farmers' and Bee-keepers' Association" of 70 members, and is president of the "Fremont Progressive Bee-keepers' Association;" is also serving his second term as president of the Michigan State Bee-keepers' Association.

His mechanical abilities led him into the supply-business until he finally gave up building, now making bee-keeping and its auxiliaries a specialty; but there is nothing pleases him more than convention work, believing it to be one of the best means of receiving and imparting knowledge. He is especially interested in bee-keeping for women, and is this year contributing a series of articles, "The First Year of Bee-keeping," to the *Housekeeper*, published at Minneapolis, Minn.

MRS. LIZZIE HILTON.

Fremont, Mich., July 5, 1888.

I have so recently given sketches of friend Hilton that I think it will not be necessary to add any comments here, more than to refer you to page 954 of our issue for December 15, 1887, and also to page 316, April 1, of the present year. The latter contains the letter from friend Hilton after he had chosen Christ Jesus for his leader and guide. In this latter decision, we are glad to know that his wife stands with him, and will stand, without doubt, while they fight life's battles till the shining shore shall welcome them.

REMOVING SURPLUS HONEY.

WHAT TIME OF DAY IS BEST? BLOWING SMOKE IN THE ENTRANCES; IS IT NECESSARY?

WHAT time of day is best for removing surplus from the hive? In the middle of the day, when the bees are at work, does it make any difference? If it does, as I have but a few I will try to accommodate them. In using a smoker, should the smoke be introduced at the entrance of the hive, or only at the top? I never saw more than one man handle bees in what I suppose was a scientific manner, and that was the man of the "Golden" bee-hive. He always smoked (when I saw him) at the entrance, but I have thought it aroused them unnecessarily. I never have noticed any opinion on these points expressed in the A B C or GLEANINGS. Those minor matters are often useful to beginners.

THOMAS A. MASKELL.

Harmersville, N. J., July 20, 1888.

As to the best time for removing honey during the day, it depends somewhat on the time of year you propose doing it. If nectar is coming in fast enough to prevent robbing, the surplus may be removed any time during the day when it is most convenient. If it is left in the hive till the honey-flow has stopped, and, as a consequence, the bees are disposed to rob, it would be better for beginners to remove the honey just about dark—that is, when the bees have stopped flying. It can be done early in the morning if the apiarist gets up early enough; but as bees are pretty early risers, the evening is better. If the honey season is over, and the hives have not been examined, or the bees have not had an opportunity to get at sweets recently, a considerable quantity of surplus may be removed before they know any thing about it, providing care is used in placing it all under cover immediately.

As to the use of smoke, we never make it a practice to blow it into the entrances unless the colony to be manipulated has the reputation of being a cross one. With the average Italians, a very little smoke blown over the top of the frames is sufficient. With pure Cyprians and Holy-Lands, and with most hybrids, if you want to work with the greatest caution (say when visitors are around whom you don't wish to have stung), blow a few puffs of smoke in at the entrance and afterward over the frames. On certain days, when the air is misty and raw, it is sometimes advisable to use smoke liberally, even with Italians. The usual tendency with beginners is to use it too liberally. I have seen some so careless, heedless, and cruel, as to smudge the gentlest Italians clear down through the hive; and, as if that were not sufficient, have somebody on hand to keep puffing smoke among them to avert any possible attack. On a good day, when a little honey is coming in, two-thirds of the average Italians, if the colony is not too strong, with proper care can be handled without any smoke whatever; but to work rapidly a little smoke should be used. If your "Golden bee-hive" man blows smoke into the entrances of every hive containing Italians, the hive itself must be a poorly constructed affair to render such a precaution necessary. Perhaps we might add right here, that the manipulation of some hives requires the use of more smoke than the manipulation of some others.

THE KING-BIRD.

SOMETHING ABOUT THEIR HABITS.

MR. ROOT:—Please find inclosed the head of a bird that is very destructive to the bee—more so than the bee-bird. This looks like the bee-bird, but is not. The bee-bird will follow the bees within 10 feet of the hive, and catch them. It will get on small weeds, and as the bees are working on flowers it will ruffle the feathers on its head and make a very nice-looking flower of the feathers. The bee thinks it is a flower; and when he goes to alight on it he gets caught. Take the head and blow in the feathers between the eyes and you will see what it is.

Montezuma, O., June 22, 1888. ELIAS STAFFORD.

A graduate of Cornell University, Mr. E. H. Sargent, to whom we forwarded the specimen, replies:

Friend Ernest:—

The head came a day or so after the letter. I feared it had become too fragrant for the olfactories of some of Uncle Sam's mail-clerks, but found my fears were ungrounded. It is the head of the king-bird, *Tyrannus Carolinensis* (Baird), *Tyrannus intrepidus* (Vieill). It is also called tyrant fly-catcher, or bee-martin. Coues and others state that it destroys a thousand noxious insects for every bee it eats; but notwithstanding the above, I am inclined to believe that, in the vicinity of an apiary, the king-bird soon discovers that it is far easier to get his fill of juicy honey-laden bees than to ply his vocation with the common run of insects; he therefore easily and quickly adapts himself to these surroundings, and becomes a constant and unwelcome attendant. He speaks in his letter of the "common bee-bird." I do not know what he means by it, as he states it is not the one he sends. I will write him about the ruffling-up of the feathers to show the concealed orange patch, making the head resemble a flower, for the purpose of attracting bees within reach; if that is so, it is a very interesting fact, and I wish to work it out further.

E. H. SARGENT.

Mr. Sargent (an old "chum" of Ernest's), formerly took charge of our apiary. He has since graduated from a four-years' course in Cornell in the department of Natural History, and has also taken a post-graduate course in the same institution.

MICROSCOPIC TESTS OF HONEY—ARE THEY INFALLIBLE?

FRIEND COOK RENDERS IMPORTANT SERVICE IN ANOTHER SERIOUS CRISIS.

FRIEND ROOT:—Your inquiry in reference to the reliability of the scientific tests for honey is very opportune. I made, the past winter, in revising my book, a careful investigation of this whole subject, and I am led to doubt the existence of a sure test for honey, either chemical or by aid of the polariscope. As you doubtless know, there are two kinds of sugars—cane, and the glucose group, or reducing sugars. The latter are so called because they reduce the copper sulphate, when made strongly alkaline by the addition of caustic potash. Of the reducing sugars, we have the glucose of our factories, honey, liver sugar, digested starch, or the sugar of digestion, etc. The chemist using the copper test as given above calls all these sugars identical, simply because they give the same reaction with the copper sulphate. I don't believe they are the same. If so, why will bees forsake common commercial glucose for honey? or why will they die on the purest commercial glucose, and thrive on good honey? Cane sugar will not reduce the copper salt; and when eaten by animals it must be digested to be absorbed and assimilated. Thus when we eat cane sugar we do what the bees do with nectar—we convert it into a reducing sugar, very likely the same as honey.

As will be seen by the above, nectar contains cane sugar. Indeed, the cane sugar in nectar often equals in amount all the other sugars put together. Analyses show, however, that the amount of this cane sugar in nectar varies. Let this be remembered: *The amount of the different sugars varies in the nectar of different flowers.* Again, as the bee sips nectar it is mixed with the secretion from the racemose glands of the head and thorax; and this acts like our own digestive secretions on the cane sugar, and changes it to reducing sugar. Now, suppose the bees are gathering very fast from the basswood, for instance, where a single colony may gather over 20 lbs. per day; does it stand to reason that they can digest this nectar as perfectly as though they were gathering from some source where they secured their stores in mere driblets? Thus in such cases of very rapid gathering the digestion would be less perfect, and the honey would contain much cane sugar. May this not account for the marked sweetness of basswood honey? In this connection it is suggestive that, in the various analyses which have been made of honey, the amount of cane sugar varies. Thus I find the analyses generally give from one to three per cent of honey as cane sugar. Yet not infrequently the amount equals five or six per cent, while in some cases even twelve and sixteen per cent of honey has been found to be cane sugar. *Here, then, mark the second uncertainty. Owing to the more or less rapid gathering, the digestion of nectar is more or less perfect.* The chemist, then, would find much cane sugar, and would report adulteration, when the honey was entirely pure, right from the bees, and through them from the flowers; but owing to imperfect digestion, the cane sugar was very prominent. Such honey would be sweeter than though more reduced, or digested, and so might have higher intrinsic value.

We see, then, that the chemist can not tell us absolutely whether honey is adulterated or not. There is reason to believe that absolutely pure honey has been pronounced as probably adulterated. The chemist was honest and able, but did not understand the whole question or its many difficulties.

But what of the polariscope test? This test depends on the property of various substances to deflect the rays of polarized light to the left or right. Thus, cane sugar changes the polarized ray to the right; so does dextrose, one of the reducing sugars of honey. On the other hand, lævulose, another of the elements or sugars of honey bends the ray strongly to the left. Dextrose and lævulose are often called invert sugars; for when cane sugar is heated with a mineral acid like hydrochloric it is changed to dextrose and lævulose. Dextrose and lævulose are obtained from fruits as well as from honey. Glucose is a term used to designate all the invert or reducing sugars, and is exactly synonymous with grape sugar.

Now, usually honey rotates the ray of light, owing to the lævulose, from two to twelve degrees to the left. FROM TWO TO TWELVE. Are not these numbers very suggestive? In the first case, two degrees; there was likely much dextrose, possibly aided by not a little cane sugar or sucrose; while in the latter case the lævulose was in the ascendency. Now, suppose the ray bends wholly over to the right. "Hey ho!" says the scientist—"adulteration!" When, in fact, it was pure honey; but the cane sugar and dextrose were still more pronounced. Surely, if the ray often varies from two to twelve, left-handed rotation, we may certainly believe it will often show a right-handed deflection. I fully believe that we have as yet no reliable methods to detect adulterations.

I am very certain that adulteration is never practiced by bee-keepers, and is very rarely practiced, if at all in these days, by dealers. This opinion is not a mere guess, but the result of extended inquiry.

To conclude, Mr. Editor, I have already commenced just such a series of experiments as you suggested in last GLEANINGS. By aid of our chemical department we shall soon know the exact truth of the matter. We shall not only test the present methods of analysis thoroughly, but shall strive to find if there is a method which is sure and practical to tell pure honey from that which is adulterated.

I have several kinds of pure honey, but I wish more. May I ask the subscribers of GLEANINGS to send me, say a pint of honey? I should like many samples, and wish to know in each case from what source the honey was gathered. Will those who *know* they have a pure article of some special kind, as basswood, clover, buckwheat, teasel, tulip, fruit, etc., send me a pint or quart? I will pay express. Before sending, please drop me a card stating kind, and I will write instructions for sending.

Agricultural College, Mich. A. J. COOK.

Many thanks, my good friend Cook. I am very, very glad to have that one sentence from you, saying, "I am very certain that adulteration is never practiced by bee-keepers, and very rarely, if at all in these days, by dealers." I wish our regular agricultural and religious papers, and especially the *American Grocer* and papers of that class, would copy this widely, and pass it around, as coming from Prof. Cook, of the Michigan Agricultural College. We ought to rejoice and be glad, when an opportunity comes, of saying truthfully that adulteration and fraud throughout our land are not practised as extensively as the papers have stated. Why, it is a terrible thing to lose faith in humanity; and such stories as have been circulated in regard to the adulteration of honey do more to unsettle confidence in one's fellow-man than almost any thing else; and, saddest of all, when we lose faith in each other we very soon lose faith in God.

THE MOVABLE-COMB HIVES OF EARLY DAYS.

FRIEND DADANT GIVES US SOME FACTS IN REGARD TO MOVABLE COMBS AS FAR BACK AS 1807.

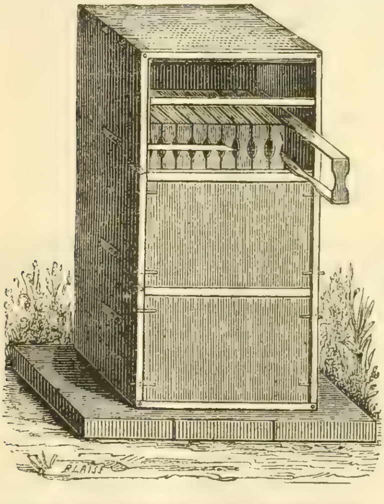
MR. C. J. ROBINSON shows, in his article of July 1st, that he did not understand what I intended to say when I wrote that, in the race for a practical movable-frame hive, between Berlepsch, Munn, Debeauvoys, and Langstroth, our friend was the winner. I did not mean that he arrived first, as in a race-course, but that he invented the most *practical* hive of the four.

Had I intended to quote the first-known inventor of movable frames, placed inside of a box, I would have mentioned Prokopovitsch, a Russian apiarist, who, according to a pamphlet published in France in 1841, had cultivated bees in movable-frame hives for 35 years before (*Apiculteur*, April, 1862, page 212). It was this hive that Berlepsch tried in 1843, but which proved so impracticable that he did not even mention the fact in his book. I can not find where Mr. Robinson found that Berlepsch and Dzierzon invented a movable-frame hive. It is certain that the invention is due to Berlepsch alone; for in his book, *The Bee*, in the chapter headed "My Life as a Bee-Keeper," he writes: "It was in 1845 that Dzierzon appears for the first time on the stage, and that the *Bienen Zeitung* was originated by Barth and Schmid . . . . The former discovered the movable-comb hive; the latter opened, in their journal, a free arena . . . . Before 1845 I did not know the movable-comb hive. . . . . . Till 1851 I had the displeasure of cultivating bees in movable-comb hives, so miserable. . . . But after several years passed in silence I came on the stage, in the years 1853 and 1854, in the *Bienen Zeitung*, with my letters on bee-keeping, having then a solid ground under my feet."

The last phrase alludes to his discovery of the movable-frame hive. In another part of his book, Berlepsch writes: "The frames were greeted with great demonstrations from every part of the country: Dzierzon and Kline were the only ones opposed to them, but for several futile reasons."

In spite of all the arguments brought forward by Berlepsch, in the *Bienen Zeitung* and in the meeting of bee-keepers, to convince him of the merits of the frames, Dzierzon continued to be opposed to them. In his "Rational Bee-Keeping" he writes: "The distance between the side-pieces of the frames and the walls, and especially the one at the wall opposite the entrance, are unnatural, and they carry off the necessary heat and moisture from the brood-nest and winter quarters of the bees, so that colonies generally winter rather badly in frame hives." (See English edition, page 63.)

Mr. Robinson advises us to speak with respect of Munn. I can not see why we should respect this man more than any other bee-keeper. In 1843 he took a patent in Paris for a hive which proved so valueless that he modified it entirely to make it even worse. (See the Manual of our friend Cook, in which the Munn hives of 1843 and 1851 are represented.)



THE PROKOPOVITSCH MOVABLE-COMB HIVE, USED IN 1807.

Debeauvoys did the same; for the hive of the first edition of his book is quite different from the ones described in the five subsequent editions. Then both these bee-keepers worked, at the same time as Langstroth, to find a practical hive, but without success. Munn and Debeauvoys were blamable in bringing out and exalting before the public their worthless inventions before testing them thoroughly. According to Mr. Hamet, editor of the *Journal d'Apiculteur*, 2500 French bee-keepers tried the Debeauvoys hive, to turn their back on it in disgust. I was one of these victims. Enraptured by a splendid comb of nice honey, 18 inches high by 12 wide, which was exhibited by Debeauvoys, with his hive, at the Paris exposition of 1849, I bought his book and hastened to construct a hive in which I hived a swarm immediately. You can not imagine how proud I was of my hive. I opened it to every visitor; I invited a number of ladies, to show them its inside, and on the following spring I transferred six colonies in six other similar hives. After having tried it two seasons I would have given to Debeauvoys the warmest certificate as to the easy management of his hive. But I learned soon after, that two or three years are not too much, generally, to test the merits and defects of a hive; for it takes sometimes longer to cool our enthusiasm and to open our eyes to the reality.

Munn and Debeauvoys did more harm than good to the French bee-keepers; for most of those who had been deluded by these poor inventions condemned, without hesitation, all movable-frame hives, even refusing to listen to or to read what was said or written in their support. I dare to assert, that the early worthless inventions of these men were the main cause which retarded the progress of bee culture in France.

Unfortunately, men like both of these inventors are not scarce. Moved by their pride, or by their desire for raising money, they exalt their inventions as soon as hatched from their brains, instead of imitating our friend Langstroth, who wrote: "I have tested the merits of my hive by long and continued experiments, made on a large scale, so that I might not, by deceiving both myself and others, add another to the useless contrivances which have deluded and disgusted a too credulous public" (The Hive and Honey-Bee, 4th ed., p. 106). I know of a great number among the best bee-keepers, in this country as well as on the Old Continent, who say that our friend forgot the above when he wrote his eulogy of the Heddon hive, after having seen it manipulated for about one week in the beginning of April. CHAS. DADANT.

Hamilton, Ill.

Friend D., I want to emphasize that point where you speak of waiting until our enthusiasm has cooled off in regard to some new invention. Over and over again we see inventors getting wild over the imagined importance of their discoveries. They predict an entire revolution in regard to the whole industry; but, how many revolutions really come to pass? The reaper and the self-binder made a revolution in harvesting grain. In our neighborhood, we never see anybody tying up bundles by hand nowadays. No one man, however, has the credit for this invention, and no one man, as a rule, causes a revolution in any industry. I myself feel like pleading guilty in the point you bring out. The readers of GLEANINGS well remember with how much enthusiasm I have explained great inventions. Well, some of them have come into actual use; but how many of them are lost and forgotten, perhaps to be brought up again when somebody else invents the same thing! The transplanting-tube that I spoke of several months ago, that I thought was going to revolutionize moving plants, we have used quite thoroughly pretty much a whole season, and I believe that we shall hereafter confine it mostly to strawberries (taking the place of potted plants), and for very early cabbages, moving melons, squashes, etc., and things of that sort. The one thing I did not take into consideration is, that transplanting—that is, frequent transplanting—is an advantage to most plants. The use of these tubes sets the plant in the field without any transplanting, as it were; and while there *is* no check in its growth, the plants that had all or nearly all the dirt shaken from their roots, often catch up and *go ahead*. Let us use all the wisdom that good father Langstroth used when he wrote that passage in his book. Especially let us remember the danger of being deceived ourselves under the influence of a new burst of enthusiasm. But at the same time, dear friends, do not let us lose sight of the value of enthusiasm. It is one of God's great gifts. But we must use it with moderation and discretion.

THE SNOUT-BEETLE, ETC.

SPRAYING FRUIT-TREES WITH LONDON PURPLE.

PROF. COOK:—I send you by this mail a bug or beetle which we found on the alighting-board of a hive. When we saw it first the bees had formed a ball around it, and after a few minutes they rolled it off the board and left it. We brought it to the house and it soon died. Will you please tell us what it is, and whether it is a bee-killer? E. PIERSON.

Kellerville, Ill., July 12, 1888.

Prof. Cook says:—

The above beetle is one of the weevils, or snout-beetles. It is the New York weevil, or *Ithycerus noveboracensis*. It is one of our largest weevils, being more than three-fourths of an inch long. It is gray, dotted with black. It often cuts off the tender twigs of our fruit-trees, and so does much harm. The grub, or larva, works as a borer in oak and other trees. It probably has a "sugar tooth," and so, in an evil moment, was tempted into the hive. The result is pointed out by Mr. P. That it injures bees is not true. The finding of it about a hive is wholly accidental. The name *Ithycerus* means straight horn, referring to the straight, not elbowed, antennæ of this beetle. The other name means New York.

Agricultural College, Mich. A. J. COOK.

Prof. Cook:—I mail you this day an insect that is strange to me. It was found here after a protracted southern wind, clinging to a twig, and it is thought by some to have been carried here from the South by the strong wind. E. W. PITZER.

Hillsdale, Iowa, July 11, 1888.

Prof. Cook says:—

The very large lace-wing mentioned above is the hellgromite (*Corydalis cornutus*). It is our largest lace-wing, and abundant all through the North. It is even larger than our largest dragon-flies, and has its jaws immensely prolonged into two great horn-like organs. Like the dragon-flies it lays its eggs in water, where the larvæ live and feed. The insect does no harm, but is very excellent for study to find out about the internal organs of insects. We find it easy in our streams to catch the larvæ in early spring for this purpose. A. J. COOK.

Agricultural College, Mich.

Prof. Cook:—I send you by to-day's mail two bugs, or insects. They are on the grapevines in great numbers, and will soon strip off all the leaves if let alone. MRS. A. F. PROPER.

Portland, Ind.

Prof. Cook replies:—

The above beetles are about the size of the June beetle. They are yellowish brown, with three black dots on each wing-cover, and one on each side of the thorax. Their legs, and under side of body, are dark metallic green. These beetles are very destructive to the grapes when very numerous. London purple would kill them, and would be safe to use so early in the season. Strength, one pound to one hundred gallons of water. A. J. COOK.

Agricultural College, Mich.

Friend Cook, may I venture a caution in regard to using one pound of London purple to 100 gallons of water? We used just this solution on our trees, and it burned the foliage from a good many of them. One pear-tree, in fact, it stripped of almost all its foliage. We thought it was blighted, but it afterward leaved out. Our peach-trees dropped their foliage and their fruit, and the apple-trees dropped a great part of their fruit; but as, in the case of the apples, it was not until some time afterward, we may be mistaken about the London purple being the cause of it. A neighbor of ours had the same success that we did. It answered splendidly, however, in banishing wormy fruit. Just yesterday I bought a lot of beautiful pears of him, and there was not a wormy one in the whole lot. They are round, perfect, and smooth. We have decided on half a pound of London purple to 100 gallons of water, and I think it will do the business.

BROOD COMBS—SOME PRACTICAL POINTS BY DR. C. C. MILLER.

HOW MANY CELLS TO THE INCH? HOW THICK ARE THEY? HOW LONG DOES IT PAY TO KEEP THEM? ETC.

ON page 898, friend Root, you straighten me up as to the size of worker-cells, for which I am obliged. I had Cheshire's book and the A B C for authority. Let me, then, amend the figures, counting 24 cells to 5 inches. At that rate there are 26.6 cells to the square inch, so that it will be nearer the truth to say there are 27 cells to the square inch than to call it 25. In order to make foundation which should contain 25 cells to the square inch, we must have 4.65 cells to the inch, or cells of such size that 23¼ cells, side by side, shall measure 5 inches. These are not matters of the greatest importance, but we may as well have them nearly correct.

THICKNESS OF WORKER-COMB.

How thick is it? I have been very unfortunate in my search, or else the books are very silent upon this point. Dzierzon, in his book, calls it about an inch in thickness, and Prof. Cook, in his Manual, says, "The depth of the worker-cells is a little less than half an inch." I think in general it is considered about ⅞ of an inch. I measured an empty comb, in which probably not more than two or three generations of brood had been raised, and it measured just ⅞ of an inch, as nearly as I could tell with a common rule. Then I measured one, black with many years' service, and it measured a full inch in thickness. In the first case the division wall was a very thin affair; but in the old comb it was an eighth of an inch in thickness, the additional thickness being made up of successive layers left by the many generations of brood. This difference in thickness, along with some other things, makes me think it possibly worth while to reconsider the question.

AT WHAT AGE SHOULD BROOD-COMBS BE RENEWED?

I had laid this upon the shelf as a settled question, saying that I had used combs 25 years old, and could see no difference between bees raised in them and bees raised in new combs. But if, in the course of years, a lining is left in the cells sufficient to increase the division wall an eighth of an inch, may there not have been a difference in the size of bees raised that would have been noticed by a more careful observer? Not long ago a writer in *The Ladies' Home Journal* advised, if I remember rightly, that brood-combs more than two years old should be renewed. Undoubtedly that is rather wild advice; but in the *British Bee Journal* for Nov. 10, 1887 (and the *B. B. J.* is not addicted to giving wild advice), occurs the following: "We may fairly suppose that three batches of brood are hatched from the same cells—taking the brood-nest only—in every season. In five years, therefore, we shall have fifteen layers of exuviæ in these cells, provided they are not removed by the bees, which experience seems to prove they are not. The brood-cells, consequently, are much reduced in size, at this age, and the bees reared will be small in size. We have used the same combs for fifteen years, without a break, when the brood-cells became so diminutive that the bees hatched therefrom were a pigmy race, and the combs were as black as Erebus, and pollen-clogged. This was before the days of foundation. With our present advantages we do not think it profitable to use combs longer than four or five years." Dzierzon, in his book, p. 28, says, "The more frequently a comb has been used for breeding, the darker will be its color and the thicker the walls of the cells, the latter becoming more and more narrow and less and less fit for use, so that in time it becomes necessary for the combs to be renewed, although in case of need the bees themselves partly remove the casings, or even pull down the cells entirely."

Now, I suppose there are a great many like myself, with combs by the thousand more than four or five years old. We do not want to have the trouble and expense of renewing all these; but if there is any gain in it, we must do it. Although some of these things have somewhat shaken my former views, I confess I am anxious not to be convinced that it is necessary to remove combs four or five years old, and will be obliged for any facts that may help to stiffen my faith.

Looking at the old comb an inch thick, and pulling it apart, I find it has a division wall made chiefly by the successive deposits left by the brood at the bottom of the cell, these deposits in each cell being about a sixteenth of an inch thick. If such addition were made to all parts of the cell-walls, the cells would be each one narrowed about an eighth of an inch, making the cell less than half its usual diameter; and it is easy to believe that bees raised in such cells would be a "pigmy race." In the comb under examination, however, I find that the addition is only at the bottom of the cell—at least, the addition to the side wall is very trifling. Is this the general rule, that, in old comb, the bottom of the cell is gradually filled up, but that the diameter of the cells remains practically unchanged? If this be the case, then perhaps we may conclude that the only matter necessary to consider, as combs grow old, is to see that sufficient additional space is allowed between combs to make up for their increased thickness. Is any thing further necessary? **C. C. MILLER.**

Marengo, Ill.

Friend M., I watched anxiously to see you strike one point that has been several times made in this matter of old brood-combs. It is this: Even if the bees are a little smaller when first hatched, in a few days they regain their usual size, and I do not believe I ever saw a colony of bees where the size of the workers was diminished in the least by old combs. There are some queens that produce large-sized bees, and some that produce small-sized bees; but I do not believe that changing brood-combs would make any difference either one way or the other. In the same way, raising worker-bees in drone-comb does not make them permanently larger. We have combs in our apiary that have been in use certainly 15 years, and I do not believe I would make the years they have been in use decide about melting them up; but I would melt them up whenever it seems as if new ones would be enough better to pay for the exchange. A great many of our combs were taken from box hives when transferring. Very few transferred combs furnish the number of cells that we get from a comb of wired foundation. On this account we have been melting up our worst combs more or less for several years. Since the advent of foul brood we have made quite a change in the way of getting nice new combs built from new foundation in place of our old ones. So you see that foul brood in an apiary works a reform something like fire in a town composed of old buildings. The fire accomplishes that which might never have been done without. Still, we do not need to be anxious to see foul brood nor fires either.

BEES ATTACKING AND INJURING FRUIT.

THE EXPERIENCE OF ONE WHO KEEPS BOTH BEES AND FRUIT.

I BELIEVE that it has been generally considered that bees do not injure fruit; but, otherwise, that they are really an advantage, in the way of helping to fertilize the blossoms. Whether they are any help in this way, I am unable to say; but I can say positively that I know that they at times do great damage to fruit. For the past two years I have had considerable trouble with my own bees, for the most part damaging both strawberries and red raspberries. Toward the latter part of the strawberry season they apparently began on the overripe berries first, which had been left by the pickers, and then they would take to the good berries until they were a real nuisance. Even after the berries were picked they had to be protected in the crates in order to keep the bees from them; and if any crack or crevice were left, top or bottom, they were sure to find it and work their way in.

With the red raspberries they were a great deal more troublesome than with the strawberries, beginning on the first ripe berries and keeping up their depredations to the very last. In the best of the season (or would have been the best if it had not been for the bees), scarcely a sound berry could be found. They were almost all punctured. It was not unusual to see two or three bees hanging to one berry. The pickers were also in danger of stings. Toward the last of the season last year I abandoned all to the bees. After the berries have been placed in the boxes, I have seen the bees collect upon them in such numbers as to cause them to settle down two inches or more, if left uncovered for a few hours. My bees were near by my berries, but I had less than 20 colonies. None of my near neighbors have many bees. I have never noticed any account in any of the horticultural or bee journals of bees injuring fruit in the way I have mentioned; but I remember noticing an article a few years ago in Purdy's *Fruit Recorder*, where he (Purdy) discouraged the keeping of bees and fruit together, and then mentions a case of how some bees collected on some ripe peaches which he had prepared for market, so as to cause them to settle down in the boxes. I believe that the cause of the bees taking to the berries so is on account of a dearth in the honey-flow about the time their depredations begin. My bees have never bothered blackberries or the black-cap raspberries; but I am convinced that no one in this part of the country can raise the reds with any profit for market, and keep very many bees near by. I have not tried to exaggerate in the above, but only to tell the facts as nearly as possible.

J. A. CARTER.

Varck, Kan., March 5, 1888.

Friend C., this is about the first report of the kind we have ever had from one who keeps both bees and fruit. I am glad to hear you come out so freely and frankly, though I do think it very unusual for bees to attack strawberries and raspberries; and I am sure that no one about here ever saw a bee pay any attention whatever to either. Perhaps the reason is, that we have never had a dearth of honey, that I remember, during the ripening of these berries, so severe as to cut off the honey-flow entirely. The bees, in fact, are busiest on clover and basswood at the time the berries ripen. When grapes and peaches ripen, however, our bees have little or nothing to work on, and I have seen them attack grapes in baskets, so the fruit would settle just as you state. Is it not possible that you may keep both bees and berries a good many years, and not have again such an experience as you have just told us of?

BEE-NOTES FROM QUIET NOOK.

SOMETHING ABOUT BEES, FROM ANNA B. QUILLIN.

THE *Apidæ*—commonly called bees—are a very interesting family of insects, and well worth studying. The *Osmia*, or mason-bee, is bluish or green in color, has a circular in-curved abdomen, and they make their nests with sand, in crevices. *Megachile*, or leaf-cutter-bee—frequently called tailor-bee—cut circular pieces from leaves, and with them make a honey-tight cell. They build the cell in holes excavated in trees or decayed wood, or in the earth. *Xylocopa*, or carpenter-bee, is of large size; and they burrow a round hole in a tree, or form a tube a foot or more in length in wooden posts or stumps, where they deposit their eggs. The *Bombus*, or humble-bees (generally called bumble-bees), have large hirsute (shaggy) bodies, and build their nests in communities in the ground or under stones.

We are all more or less acquainted with the bumble-bees, and I have often wondered why boys took such special pleasure in fighting them. I have known boys to walk a mile to enjoy the pleasure of fighting bumble-bees, when they would think it a great hardship to walk two dozen steps and carry an armful of wood. It would be very tiresome to carry wood; but to walk a mile and then dance around with a dozen mad bees in hot pursuit, was just "lots and lots of fun."

One morning, a year or more ago, my little friend Max came in to see me; and as he walked across the room I noticed that he held both his hands behind him. As he approached my couch he explained, "I've got something for you—just hear them sing!" and suddenly, before I realized what he was going to do, he was holding his hands up by my ears. And, oh such a *buzz, b-u-z-z, b-u-z-z-i-n-g* as I heard! I felt as though a whole swarm of bees had surrounded me. Glancing up at him I saw his eyes were twinkling, and he was shaking with suppressed laughter as he watched my astonished countenance.

"O Max!" I said; "are your hands full of bees, or what have you got in there? It sounds like a swarm of bees."

"Just five bumble-bees," he replied; "but they can't hurt you, for they are nothing but drones."

"But, where did you get them, and how did you know they were 'nothing but drones'?" I questioned.

"Why, 'cause I found them on that old dead tree in the lane!" he replied.

"But, Max," said I, "how could that tell you they were drones?"

"Ho!" he said, "don't *you* know how to tell a drone? Why, I'll tell you how you can tell them every time! The workers are too busy to lounge around and do nothing; and when they alight it is always on something they can work on; and when you see bees sitting around on dead wood, with nothing to do, you may be sure they are old lazy drones. Why, I have caught *dozens* of them, and they are *always* drones. I never caught a worker that wasn't at work, or else looking out for a job."

"Well, Max, that is a new idea to me," I said; "but if that is the case, the bees are very much like people, aren't they? For a man who spends his time sitting around on old store-boxes, and lounging about saloons, is generally a drone in the human hive. Our workers in the world haven't much time to waste, for they can always find plenty to do, and take pleasure in being useful."

The apis, our true honey-bee, is said to have originated in Asia, whence it has spread over Europe, and been imported to America. I presume the bees are believers in "woman's suffrage" and "woman's rights" for they are always governed by a queen, and it used to be asserted that the females did all the work. I suppose it was in accordance with that idea that the poet Milton, in "Paradise Lost," says:

> "—Swarming next appeared
> The female bee, that feeds her husband drone
> Deliciously, and builds her waxen cells
> With honey stored."

Ipava, Ills. ANNA B. QUILLIN.

Your little story has a very good point to it, friend Anna. If I had been told it before, I had forgotten it. Hereafter I shall try to tell which are drones and which are workers by the way they behave—not only with bumble-bees, but in the great hive of humanity.

HEADS OF GRAIN

FROM DIFFERENT FIELDS.

SOLITARY BEES.

HERE are some specimens of a peculiar little bee which is working upon our sunflowers in great numbers. That they belong to the family *Apidæ*, is evident at first glance, as they are covered with pollen, and gather it very industriously, packing it upon their posterior legs, much as our hive bees do. But I am unable to tell just what kind of bee they are, and would like to know more fully of their habits. Are they comb-builders? Where do they have their nests?

J. FRANK PARKER.

Philadelphia, Pa., July 25, 1888.

Prof. Cook says:

The bee is a species of *Andrena*. They are solitary bees that form their cells in hollow stems, etc. They sometimes steal honey from hive bees, as I have reported in GLEANINGS.

SETTING UP HIVES IN THE WOODS TO DECOY ABSCONDING SWARMS.

I should like to ask one question, and I should like the opinion of as many as I can get. By setting hives in the woods, does it in any way entice my neighbors' bees, or does it work any injury to any one? I made a few hives last winter, and had my 12-year-old grandson set them out in the woods. Some of my neighbors complain that it entices their bees, and are hunting them up and smashing them to pieces. Now, friend Root, I do not covet any man's goods without giving a fair equivalent, and I certainly would not do it if I thought it worked harm to any one. I hope you will tell me all about it, as I believe you love justice.

Middlebury, Ct., July 23, 1888. R. B. WHEATON.

Friend W., your question hinges, as it seems to me, on the ownership of the woods. You surely have a right to put as many hives in your own woods as you please, and your neighbors are liable for trespass if they destroy them. You can also put as many hives in your neighbors' woods after you have gained the consent of the owner of said woods. Your neighbors have no right to say you did it to decoy their bees. I do not think that these decoys would cause the bees to go to the woods any more than if there were no such decoys. If your neighbors who own bees can trace them directly to the trees in the woods, they could hold their property. But this is so very difficult, that ordinarily swarms found in the woods belong to the discoverer; that is, the bees do, but not the tree that holds them.

HOW TO KEEP COMBS FROM MOTHS WHEN OUT OF THE HIVES.

Tell me how to get surplus comb to give the bees in extracting season, to keep from extracting the honey before it ripens sufficiently. Honey extracted this season is candying now. I have often tried to save pieces of comb, but invariably the worms would eat it up. Can you tell me how to keep the worms out of it? I read A B C and GLEANINGS, but these are two points I have not had light on yet.

A ten-dollar right to use the "Golden" bee-hive was sold to numbers of persons in this and adjoining counties, and I am using that hive. The Simplicity can be used on it for an upper story.

I noticed in GLEANINGS that somebody wanted a honey-slinger, and did not know if it would pay for him to buy one. I wanted one, and went to work and made it. I made the proper framework for holding the frames of honey, and fixed it up in a large tub, merely using a common crank to turn it. I can turn it fast enough without any castings.

Honey-flow almost entirely ceased here the first of June. A great many bee-keepers around here "rob" about the 10th of June, and don't rob every year, as they want to keep strong colonies.

Johnsonville, S. C., July 9, 1888. C. L. EADDY.

The manner of preserving combs is very fully given under the head of "Moth Worms" and "Enemies of Bees" in the A B C book. If you keep Italians you will have no trouble from the work of the moth worm on the combs while the bees have access to them. There is not the least difficulty in keeping them while not in use, if they are kept in a close box or room where the moth worm can not get at them. If the worms get started, fumigate with sulphur, as given in the A B C book. If you want to get a good many good combs, the best way is to use foundation and get them built out at that time of the year when honey is coming in slowly. Put the combs away as above directed and they will be safe until wanted.

TO GET RID OF FERTILE WORKERS.

I see in GLEANINGS of the 1st inst., that Mr. G. O. Salzman makes inquiries how to get a fertile worker out of a swarm of bees. Let him remove all combs and bees out of the old hive, then move bees and hive for about 50 yards, and let it stand for about 24 hours. The workers will generally go back to their former hive, which must have some combs; then after the expiration of the 24 hours, kill all drones and workers remaining in the hive removed. See whether fertile layers did not remain to watch the brood. Introduce a queen in the other hive. I think it will work every time. M. B. BERGEY.

Souderton, Pa., July 5, 1888.

THE DISTINCTION BETWEEN AN AVERAGE AND A FAIR YIELD.

In your statistical reports you speak of "average crop." Now, what is an average crop—i. e., what is the average yield per colony, spring count, for different States, and the entire country? If we knew this, we could understand your valuable tables better. My own honey crops for 12 years have ranged from 2 to 92 lbs. per colony, spring count, and averaged 47 lbs. I think it would be a good thing to ask your reporters, "What is an average crop?" not a good or a fair crop, but what has it averaged for a term or years?

Our white-honey crop is an entire failure, as to surplus—first time in an experience of 12 years. Fall prospects poor. H. D. BURRELL.

Bangor, Mich., July 27, 1888.

Your suggestion in regard to an average crop is a good one, and we certainly will try to incorporate it in the next batch of questions we send out to our statistical reporters. What we meant by an average crop was not an average for the entire United States, but an average for that locality. You say you have had all the way from 2 to 92 lbs. per colony. This would make an average of 47, as you have it. Perhaps we will put it this way: "What is an average crop with you, and what do you consider a fair yield?" A fair yield in your locality will be 75 lbs., and an average yield 47 lbs., as stated.

HOW TO GET THE HONEY OR CONTENTS OF A BEE WITHOUT KILLING IT.

Take the bee by both wings or thorax, the usual way with your thumb and first finger. The bee will now straighten and put out its sting. This you press gently against a hard substance, when the bee will spill out and hold between her mandibles whatever she carries. This can be taken from her best with a pinhead or small instrument, to be held in your left hand. Large numbers can be extracted in a short time, either as they drop at the entrance or at the flowers. If I do not want to retain the contents of the honey-sac I press the bee against the thumb-nail of my left hand, allow it to swallow back the honey, and let it go. C. H. LUTTGENS.

Hammonton, N. J., July 24, 1888.

SWARMING AT SUNRISE, AND RETURNING 24 HOURS AFTERWARD.

A swarm of bees came out Wednesday at about 10 o'clock. We hived them, and at night moved them to the stand where I wished them to stay. They were all in the hive when we moved them. That night it rained hard. The next morning the sun shown a little while at rising, then it came on raining again. In the forenoon I went to look at my bees, and every one was gone. They left at sunrise, before I was up. I felt bad, and looked at my silent hive the last thing last night. This morning I looked again, saw quite a number of bees flying around the entrance, went to look more closely, and there were the bees all back again, working away "as busy as bees." They came back this morning at sunrise, just as they went away. I guess they mean to stay now. MRS. FANNY M. GRANT.

Center Ossipee, N. H., July 13, 1888.

WANTS TO GO WEST FOR A TIME; WHAT SHALL BE DONE WITH THE BEES?

I want to go west for the summer and fall, and I want to fix my bees so they will not swarm. Will a hive full of foundation, under an average colony, do? and will the same with one or two racks of sections (30 to the rack) on strong colonies be best? I think there are but few old queens. I have fed $100 worth of sugar, and some are near out, and no brood, but lots of bees. E. SANFORD.

Nokomis, Ill., July 9, 1888.

Friend S., either plan you propose will greatly lessen the probabilities of swarming; but there is nothing you can do, probably, that will prevent it absolutely. You might clip your queen's wings, and then when the swarm came out they would return; but the season has been so poor throughout the country, and yours seems to be no exception, that I think they would not swarm, even if left alone. The season is now entirely over for honey. Swarming hardly ever occurs to any extent unless honey is coming in from some source pretty freely. On the whole I think I should advise you to let the colonies remain just as they are, and leave instructions with some one to give them more room in case there should be a sudden flow of honey from some source. When honey is not coming in, the bees will be pretty apt to gnaw the foundation, and make unsightly holes, if you give them a hive with foundation in the frames. Or if you give them sections, the latter would become discolored, and unfit for the storage of honey the succeeding year.

THE HONEY-DEW OF OREGON.

Friend Root:—In looking over some back numbers of GLEANINGS loaned me by a friend, I find Mrs. M. B. Chaddock is entertaining a wrong idea as regards the nature of honey-dew. I have lived in Oregon and Washington Territory for the last twelve years, and do not remember of our having a failure of honey-dew. Its first appearance is found upon all vegetation, more noticeably upon the larger leaves. It is in appearance like a light shower of rain standing upon the leaves. It is of a sticky nature, and in taste similar to honey. After a time it becomes dry, and remains until washed off by the rains. My neighbors' wives voted it a nuisance during huckleberry-picking time. It has been reported from Eastern Oregon that honey-dew was there in such quantities that teamsters in harvesting had to be pried out of their seats with a crowbar, often leaving a portion of their garment in the seat. I do not vouch for that. I am not a bee-man, and do not know whether bees work on the dew or not. GOLTZ MANSON.

Neer, Oregon, June 30, 1888.

PREVENTING BEES FROM STINGING YOU BY HOLDING YOUR BREATH.

Herewith I send you an item entitled, "How to Prevent Stings," taken from a current publication. Is there any truth in it? I did not have faith enough in it to give it a trial. M. A. KELLEY.

Milton, W. Va., July 16, 1888.

TO PREVENT STINGS.

Nearly every one is aware that the human body is covered with many thousands of tiny pores in the skin, and that health depends largely upon keeping these pores open by frequent bathing. From the facts given by W. L. Wilder in a recent number of the *Science*, it would appear that these pores are so many mouths, capable of opening and closing in unison with the action of the lungs. Mr. Wilder says:

> It is a fact not generally known, that, if one holds his breath, wasps, bees, and hornets can be handled with impunity. The skin becomes sting-proof, and, holding the insect by the feet, and giving her full liberty of action, you can see her drive her weapon against the impenetrable surface with a force that lifts her body with every stroke; but let the smallest quantity of air escape from the lungs, and the sting will penetrate at once. I have never seen an exception to this in twenty-five years' observation. I have taught young ladies with very delicate hands to astonish their friends by the performance of this feat, and I saw one so severely stung as to require the services of a physician, through laughing at a witty remark of her sister, forgetting that laughing required breath. For a theory in explanation, I am led to believe that holding the breath partially closes the pores of the skin. My experiments in that direction have not been exact enough to be of any scientific value, but I am satisfied that it very sensibly affects the amount of insensible perspiration.

I am very glad, friend K., that you did not have faith enough in it to give it even a trial. The whole thing is so utterly ridiculous that I did not intend to dignify it with a notice. We see it, however, in so many papers, and, worse still, some pretended scientists are trying to discover an explanation for it, that I think best to give it this passing notice. It is lamentable that our periodicals will stoop to pick up such folly, and pass it along.

Since the above was in type, we have the following from Prof. Cook:

Dear Friend:—I heard years ago of the absurdity, that holding one's breath would exempt him from stings. I thought at once that it was nonsense, but put it to the test. It was one of the most satisfactory experiments I ever tried. I think the bee appreciated the joke, for I rarely get a more painful thrust. It was like brother D. A. Jones's ice water. He told me that ice water would prevent all pain from a bee-sting. I said, "Produce the water." I pinched a bee, got the sting, and at once thrust my hand *into* the cold water. I do not think I was hurt worse from a bee-sting that whole season.

A. J. COOK.

Agricultural College, Mich., July 21, 1888.

And so, friend Cook, you really made a test of the matter, did you? Well, I didn't; but I did try putting kerosene on a sting, and the sting was the most painful one I perhaps ever experienced in my life. I might have rushed to the conclusion that the oil made it worse; but my opinion is, that it had no effect whatever. The sting simply *happened* to be a severe one.

FURTHER PARTICULARS IN REGARD TO POUDER'S OPEN-SIDE SECTIONS.

Friend Root:—You have illustrated and explained my open-side sections so clearly that further explanation would seem useless, but I fear you have misconstrued some of the most important features. I do not use the T super; but if I did I should certainly want to use these sections in connection with it. You state that the projecting sides should be the same width as the separators used—3½ inches. I would use separators 3½ inches wide, and have the projecting sides of my sections only 2½ inches. Thus you will see that they can be used in the T super (or any ordinary crate) without having the sides closed with the T support.

When filled with honey they have a plump appearance that is equaled by none other. The friends who are looking for non-propolizing bees should give these sections a trial, as they are propolized very little, and are easily scraped. In fact, they are entirely free from the defects that I have seen mentioned about other open-side sections.

WALTER S. POUDER.

Groesbeck, Ohio, July 19, 1888.

Thanks. It is true, that the projecting sides could be made narrower, or 2½ inches, instead of 3½. This would obviate the difficulty we mentioned, of direct passage from side to side over the upright of the T. But it would increase the expense of the cutter-knife necessary for making the openings. It would likewise give the bees a better opportunity to chink propolis between the sides, for the upright of the T forms a space of $\frac{1}{32}$ inch. In this respect it would be open to the same fault as the regular open side in the T super. It seems our friend Byron Walker advertised and sold these or very similar sections some six years ago. He will give particulars in another issue.

HONEY FROM THE MESQUITE; ENCOURAGING FOR TEXAS.

I have sent you by to-day's mail some flowers of the mesquite (*Algarobia glandulosa*), from which we are now getting quite a flow of honey, which comes in as the horsemint dies out. We have had too much rain for the horsemint. We got only about 35 lbs. per hive from it; but they are filling up faster on the mesquite, which is the fullest of flowers I ever saw it. The mesquite is a low spreading tree, looking much like a peach tree, hence they are often mistaken by "tender feet" for an old orchard; the roots penetrate the soil deeply, with few or no surface roots. The main root is a tap-root, and the leaves make but little shade. They do not more than half shade the ground, so they do not interfere with the grass. In addition to the honey from the flowers, the wood makes the most lasting fence-posts for our barb-wire fences, if they are cut in the spring, and the bark peeled off so they will season quickly before the worms get into them. They make good firewood, a dry mesquite limb being nearly like coal for heat. The seed is borne in a pod about 6 to 10 inches long, and when ripe is excellent food for all kinds of stock—equal to grain. The seeds are very hard, and pass through cattle in a fine condition to germinate, and are scattered in that way. The blooms are successive, and this quality makes it more valuable for the bees, the season generally lasting 6 or 8 weeks, and the beans are a long time falling too. The leaves are fine food for stock when they can reach them. The honey is whiter and nicer flavored than the mint, and drouth does not entirely cut off the honey crop, for last year I got about 40 lbs. per hive. The dryest year we ever had here, they brought it in and sealed it up as they gathered it. G. J. ELAM.

Marlin, Tex., July 7, 1888.

COGGSHALL BEE-VEIL, AND HOW TO MAKE IT.

Friend Root:—In a recent issue of GLEANINGS you described the way to make and use bee-veils. We all have a way of our own in making and using and wearing the same articles, and we are quite apt to think it is as good if not a little better than any other way. I will describe mine, and leave you to judge. Get a wide-rimmed hat, 2 inches wider than an ordinary chip hat. It must be a stiff-rimmed one. For veiling, use black milenett (milliners use it in the construction of bonnets). I have it sewed on the hat two inches from the outside of the rim on the under side. I will not attempt to give the exact length to have it cut, as some heads are larger than others. Sew a hem of strong cloth on the lower edge of the veil; use a flat shoe-string, or a strong cord, for a gathering-string. Gather the back half and sew it fast to the string or cord so it will not pull out, then all of the folds or gatherings are in the back part of the veil. Now put the hat and veil on; draw up the cord and tie tight, or moderately so, under or below your collar. The advantages are, a bee can not get in under the veil; you know when the sun shines on the facing you can not see as well, nor see a queen to distinguish her from a worker, nor eggs in the cells. The rim of the hat projecting beyond the veil shades it so you can see every time. When going from one apiary to another, tuck the veil in the top of the hat, and wear it all the time. In half a minute you are all ready for business. I have seen them adjusted in two seconds.

W. L. COGGSHALL.

West Groton, N. Y., July 25, 1888.

STRONGLY IN FAVOR OF THE OPEN-SIDE SECTION; THE BEST PROPOLIS-CLEANER.

Friend Root:—I have been reading the article in the July 1 No., in regard to open-side sections. They are used here in preference to any others. Seeing an article in GLEANINGS two years ago in regard to them (I think by friend Doolittle), I became so enthusiastic over the idea that I took the pains to cut out the sides with my knife, and I was much pleased with the result. The bees filled the sections more evenly, not extending the combs into other sections and stopping the passageway from one section to another. On the contrary, they fastened the combs more solidly to the box. This year I have purchased no others. My experience in this matter has been the same as my neighbors' who tried them last year; and I am satisfied that those experimenting with them will have no other. I think I see a serious objection to those with open corners, both in regard to propolis and handling.

I can see no use for separators. When one crate is filled, raise it up and put an empty one under. Of course, there will be some work done between the frames and sections.

I notice the question asked (No. 61), "What is the best tool for removing propolis?" etc. Though late, I will answer. If your wife should break your butcher-knife in cutting frozen steak, grind the broken end square, and you will thank her a thousand times for breaking it.

La Otto, Ind., July 9, 1888. E. S. HANSON.

A QUEEN WHOSE PROGENY WON'T SWARM, AND GOOD WORKERS TOO.

Friend Root:—I want your opinion on a stock of bees. I have an Italian queen in an observatory hive, that has never swarmed. She is three years old; the hive is two-story, queen very prolific. In June I was anxious for her to swarm. I wanted cells from the hive, as the bees are the gentlest and most uniform of any I have ever seen. I let the hive get full of honey the first of June, and remain so for three weeks. The bees increased so that they could not all get in the hive by a peck, and even then they would not swarm, nor would they start cells; so when basswood opened I extracted the honey from them, 92 lbs., so every bee went to work at once, and in 8 days the hive was full again, and now the bees are crowded out again. The queen has to-day seven frames in the lower story, full of brood.

Well, friend Root, this is not all concerning this queen. I have two other queens raised from her eggs, one year old this spring, and they refused to swarm this spring. One I kept in a single-story hive, in order to force swarming. They filled every thing with honey, and just quit work right in the midst of the finest flow of poplar honey I ever saw. I let them remain so until linn blossomed. I examined them, but no cells were started. I then put on a top story with 28 1-lb. sections. All went to work at once and filled them. I removed and placed the same number on, and they are now ready to take off again, filled with linn and sourwood. The third I have extracted from four times. I know they have never swarmed, for I have watched them closely. Have you ever had Italians do this way? All the rest of mine, 117, wanted to swarm too much. Might it not be possible that they are a non-swarming set? If, in your judgment, you think these bees depart from the regular order of Italians, and are likely to always be so, you may make any suggestions.

I have come to believe they won't swarm with me under any circumstances. I began to think last year the old queen was peculiar in her notions about staying at home, and this year I know she is, and her daughters are both just like her. I will make a full report of my year's work later.

R. B. WILLIAMS.

Winchester, Tenn., July 14, 1888.

Friend W., if you have some non-swarming bees you have certainly something that is very desirable. A queen whose progeny are good workers, and will not swarm, and which can duplicate these characteristics in her daughters, ought surely to be a valuable one, and one that you would do well to breed from. Why not advertise queens from her? This notice may give you a little free advertising, but we are glad to call the attention of our readers to such a queen.

WHY THE BEES DON'T GO TO WORK.

My bees have not yet swarmed. I wonder why they do not. They are in boxes about the size of your hives. They have been "hanging out" on the outside for the past six weeks. They seemed to be suffering from want of ventilation, so about a month ago I raised the hives about half an inch by putting a little block under each corner. The moths can't get in, for the bees are packed thick to the bottom, so as to exclude any space. I put on some surplus boxes with dry comb in them to see if they would store any honey. A few bees go in the boxes, but they are not putting in any honey.

About three weeks ago we had a few days of chilly weather, and the bees killed off hundreds of drones, and there have not been many drones flying since. The queens are one year old, and are good layers, judging from the way the bees thickened up.

Gary, Dak., July 13, 1888. MRS. A. C. MONAGHAN.

My friend, your last paragraph contains the secret of your bees not swarming. If your bees are killing off the drones it indicates pretty conclusively that there is no honey coming in. Unless the inflow of nectar is pretty brisk there will be little swarming. Your report is only one out of hundreds of a similar import throughout the United States. See Honey Statistics in July 15th issue of GLEANINGS.

HOW THAT QUEEN FOUND THE HIVE—GLEANINGS, 1888, PAGE 530.

How many apparently impossible and mysterious things happen in this world, which are very simple if people only knew how it was done! And what misunderstandings and many times feelings arise, because a person knows a thing and yet can not explain it! Taking the queen from the hive at midday "on a good comb of bees," and placing them in a strange hive excited them, and of course all the bees which had ever flown started *en masse* for home, and it was not only easy but very natural for the queen, if she was strong enough, to follow the body and return with them to the hive.

Portland, Mich., July 9, 1888. S. C. PERRY.

OUR QUESTION-BOX,

With Replies from our best Authorities on Bees.

All queries sent in for this department should be briefly stated, and free from any possible ambiguity. The question or questions should be written upon a separate slip of paper, and marked, "For Our Question-Box."

QUESTION NO. 70.—*Is there any way to make a swarm artificially, and have it just as good as the natural swarm, for the production of honey? If so, how can it be done?*

I think not. R. WILKIN.

I think not. JAMES A. GREEN.

I don't know of any. A. B. MASON.

Not any that I know of. G. M. DOOLITTLE.

Yes. Shake or drum the bees out into a new hive on the old stand. H. R. BOARDMAN.

Hardly. On some things, man can beat nature; and then, again, on some he can't.
MRS. L. HARRISON.

We make all our new swarms artificially, and think they are just as good for any purpose as natural swarms. E. FRANCE.

Yes. The method should vary in different locations. Much will depend upon the sources of honey, and the duration of the flow of the same.
L. C. ROOT.

No, I don't believe there is; but in many cases artificial increase may be so done as to increase the production of honey by the apiary as a whole.
O. O. POPPLETON.

This would be too long to answer; but we know that an artificial swarm may be made as good as the best natural swarm, and even better, if desired.
DADANT & SON.

Yes, considering the usefulness of the old stock from which both are to come. This department is not large enough for such an answer as I should like to make. JAMES HEDDON.

I think a natural swarm more ambitious at first. An artificial swarm given the same quantity of old bees, and the same conditions as near as may be, will do equally well after a few days.
GEO. GRIMM.

I think just as good. Build up nuclei. If one can attend to it, the swarming method, having queens' wings clipped, is much the cheapest and best. But I have had most excellent artificial swarms. A. J. COOK.

Size being equal, the natural swarm is better; but there are other methods of managing an apiary in which there is less increase, less work, and more honey than by allowing them to double by natural swarming. P. H. ELWOOD.

Probably not. I think, however, that the advantage of the natural swarm is mainly during the first few weeks of its existence. I think, also, that a full colony made like a Doolittle nucleus would be nearly as good as a swarm. E. E. HASTY.

Take frames of hatching and nearly hatching bees with adhering bees from several strong colonies, taking 10 such frames—that is, let 2 be full of honey; introduce a queen 48 hours after. If you do this at swarming time you will have a good working colony, as then there is no trouble to find full frames of hatching brood.
PAUL L. VIALLON.

It is claimed that a newly hived natural swarm works with a vim that no other equals. I don't know whether there's any thing in it. I should expect about the same result from a colony made by shaking off the queen and half the bees into an empty hive placed on the old stand.
C. C. MILLER.

Artificial swarms can be made better than natural swarms, because they can be made in due time; i. e., long enough before the flow of honey in order to have enough old bees to make use of the honey-flow, or late enough so that other colonies need not be deprived of their worker force during the flow. A good natural swarm is a good swarm only at the expense of the parent colony which is deserted by its foragers, and no good for the following 10 or 14 days. CHAS. F. MUTH.

Many of the answers seem to indicate that the question should have been put differently—something like this, for instance: Will as much honey be secured from both swarm and old stock, where swarmed artificially, as when they are swarmed naturally? and I will try to give my answer to the question as above. Although a new swarm will start out with more vim than any artificial swarm I have ever seen, notwithstanding I do think an artificial swarm, made with sufficient wisdom and discretion, will in the end secure just as much honey—or, rather, the swarm and parent stock together will secure just as much honey. You will remember that Langstroth, in his book, tells us that natural swarming is wasteful—that is, so far as rearing bees is concerned; but having a laying queen ready to give the parent stock as soon as the swarm issues, enough bees may be raised to produce still another swarm, over and above what would have been raised if nature were allowed to take its course. I believe this does not seem to work always in practice; yet I do believe we can often improve on nature in this matter of making *increase*. If the increase is of no use, however, owing to time, locality, etc., then natural swarming would be ahead. My experience is that it does not as a rule pay to make artificial colonies much before the bees begin to swarm naturally. Another thing, so few have the wisdom and experience necessary to make artificial swarms judiciously, that we might almost set it down as a rule that most bee-keepers will make more honey to let the bees swarm naturally; and if they do not swarm at all, so much the better, providing they have at all times ample facilities for storage.

QUESTION NO. 71.—*What kind of a bee-hat do you use? Do you consider a light-weight summer hat as cool as a light-colored felt hat, either stiff or soft?*

One of light green wire, with pasteboard crown.
MRS. L. HARRISON.

Straw, with veil sewed on the rim; light-weight straw hat. DADANT & SON.

I use a straw hat, and know it is cooler than a felt hat. P. H. ELWOOD.

I wear a straw hat in summer time as the most comfortable for me. CHAS. F. MUTH.

I prefer a light stiff felt hat with a loose veil (not attached to the hat). H. R. BOARDMAN.

I prefer a light-weight summer hat, with a light airy bee-veil properly fitted to it. L. C. ROOT.

I prefer the cloth hat sold by A. I. Root last season to any thing else I ever tried.
JAMES A. GREEN.

I have always used a light straw or chip hat, with black tarlatan sewed to the rim. It is very good.
A. J. COOK.

I like a good straw hat with a rim stiff enough to carry a veil, if I should want a veil; but I seldom use one. E. FRANCE.

Use a light-weight, broad-rim stiff linen hat, with a ventilator around the head part, and you will never want a felt hat again. PAUL L. VIALLON.

1. A light chip hat with a brussels-net veil all around it, sewed to the rim. 2. I will take the light-weight summer hat every time.
G. M. DOOLITTLE.

1. Root's twenty-cent cloth hat, with a bee-veil. 2. I'd like to ask that "feller" if he "considers a light-*weight* summer" coat "as cool as a light-*colored* felt" coat. DR. A. B. MASON.

I use a light-colored straw hat, with a black all-bobinet veil sewed to the outer edge of the rim. I keep it in the bee-house, and change hats when I wish to wear a veil. JAMES HEDDON.

I usually wear an ordinary straw hat. The light-weights do not protect one from the sun as they should; and putting in burdock leaves and greens and things is unsatisfactory. E. E. HASTY.

I use 5-cent hats, also Root's light hat. I think I prefer the latter, but the women prefer the 5-cent hats, because they droop. As I work mostly under the shade of trees, I like the light-weight hat. In the sun it might be different. C. C. MILLER.

I use a white linen hood, with wire screen for face. Somehow I never could get accustomed to a hat and veil, nor do I think them as cool or comfortable as my hood. You would laugh to see it, but your laugh could not induce me to change.
GEO. GRIMM.

I use a light straw or linen hat, with a bobinet sack, having both ends open, made just large enough to come down over or around the hat rim. A puckering-string in the upper end enables me to draw it neatly around the crown; the lower end is tucked under the vest. I cut a hole immediately in front of the face, and insert a piece of brussels net.
R. WILKIN.

I have had no experience with either kind of hat mentioned. I am very much subject to headache, caused by eye troubles, and am obliged to use as light cool head-covering as I can find. For several years past my wife has braided my hats from Florida palmetto leaves, which suits me the best of any thing I have yet used. She has also made the common every-day hats used by both of us for several years past. O. O. POPPLETON.

Some of the answers are quite amusing. Our friend George Grimm wears a linen hood, and persists in it, even though it does attract attention. I was rather inclined to think that friend Grimm would be one of the last to make himself conspicuous. Friend C. C. Miller works mostly in the shade of trees, and from his foregoing remarks we presume the women-folks with the five-cent hats have to attend to the hives that are out in the sun. Perhaps in his answer he came pretty near letting the cat out of the bag, though he did not intend to let it get out. As for myself, I can not afford to have two hats—that is, during week days. If I do, I am sure to have the wrong hat at the wrong time.

QUESTION NO. 72.—*1. Do bees ever store water in their combs? 2. If so, at what time of the year?*

No. DADANT & SON.

No. GEO. GRIMM.

I think never. R. WILKIN.

I do not know. O. O. POPPLETON.

Posssibly, in February. MRS. L. HARRISON.

I think not, except as they mix it with the honey.
H. R. BOARDMAN.

If bees store pure water in their cells at any time, I never saw it. CHAS. F. MUTH.

I have never known mine to; but I have had them store nectar nearly as thin as water.
JAMES HEDDON.

They store something that is pretty near water, but I don't know that they store pure water.
P. H. ELWOOD.

I don't know. They gather water all the season, but I never could find out if they *stored* any of it.
PAUL L. VIALLON.

I believe I never caught them at it, but I believe they do. If they don't, I wonder what they do with what they gather. DR. A. B. MASON.

Bees carry a good deal of water when they are breeding fast. I have never seen water stored in the combs as honey is. E. FRANCE.

I have found what to all appearances was water stored in the combs in small quantities. This was in early summer. It did not remain long.
JAMES A. GREEN.

Bees carry water to their hives only as they desire to use it to dilute or thin their honey. They are known to carry it most freely during the early spring. L. C. ROOT.

All I know about it is, that they carry a good deal of water into the hive, especially in the spring, but I doubt if it is ever stored as clear water in the combs. C. C. MILLER.

The impression that bees store water probably comes from finding lots of it in their combs in spring. It is water of condensation. I do not believe their ever store it. E. E. HASTY.

1. This is a mooted question; but whether stored or not, I think water is one of the essentials for brood-rearing. 2. If ever stored, it is in early spring, when a chance to fly out and get it at pleasure is not fully assured. G. M. DOOLITTLE.

I have never caught them at it. I am skeptical on the whole water business. If water is so necessary, how can bees keep breeding a week at a time during rains and cold days, and feed the brood? It seems to me that the water must be for bees hard at work on the wing. A. J. COOK.

Well, now, friends, I am very glad to be able to say that I have seen bees carry water and store it in their combs. It was a little nucleus, however, inside of a greenhouse or cold-frame. The little hive got very hot, and some of the bees went to exploring the greenhouse in quest of water. They found it where I provided it, and not only carried in loads of water, but stored it in cells close to the brood; but it does not follow from this that they sometimes put water in the combs under natural circumstances, but I thought it possible they might in very hot weather.

NOTES AND QUERIES.

WHAT TO DO WITH A CONTRACTED BROOD-CHAMBER AFTER THE HONEY-SEASON.

I HAVE the most of my bees contracted to 6 L. combs. Had I better leave them so until they are through with the fall flow of honey? We are looking for one in August and September. Or had I better add more combs when the flow of white honey is over (which is very light), as I have never had them contracted to less than 8 L. combs before? J. S. WILLARD.

Bedford, Ia., July 14, 1888.

[At this time of year, if honey has stopped coming in you had better give the bees their full capacity of brood-chamber. What fall honey you secure will probably not be enough to make very much surplus. What you get will be needed to be stored in the brood-nest for winter.]

QUEENS FROM THE SOUTH NOT INFERIOR.

Is it advisable for Northern men to buy their bees from the South, to breed from?

Lander, Pa., July 9, 1888. J. G. TOWNSEND.

[Friend T., bees from the South, if from a reliable breeder, are just as good as those from the North. Perhaps those bred in a Northern climate might be a little hardier, but we should think not.]

HOW TO GET RID OF MORILLA CHERRY SPROUTS.

What is the best plan to destroy morilla cherry sprouts? They are encroaching on my apiary grounds. I have been digging them up, but that only increases the pest. L. CRIM.

Prescott, Iowa, July 18, 1888.

[Will some nurseryman please give our friend the information he requires?]

WHEN TO TRANSFER; HOW TO DO IT NOW.

What time, during this month and next, is the best time to transfer bees? MAT. YOUNG.

Frankfort, Ind., July 4, 1888.

[This is not the best time of year to transfer bees. Do this work during fruit-bloom, or during that part of year when there is very little honey in the hives. Just now the combs will be filled. As the honey-flow has probably stopped now, you will have to be very careful and not let robbers get started. We would advise you to do the work just about dark. Be very careful after the job is completed, that there be no chunks of honey lying around for the robbers to get at next day.

RAISING ITALIAN QUEENS IN A LOCALITY WHERE THERE ARE BLACK DRONES.

Can I be successful in raising full Italian bees, my place having no bees on it? I live only about half a mile, though, from a small apiary of black bees. W. W. PRIGMORE.

Alma, Mo., July 5, 1888.

[Friend P., you can not be successful every time in raising pure Italian queens in your locality, under the circumstances you mention. Probably one-half or two-thirds of them will prove to be truly mated. By the use of drone-guards applied to your neighbors' hives (see page 5 of catalogue mailed you) you can get rid of the black drones.]

WASTE PAPER INSTEAD OF CHAFF.

Will waste paper be as good as chaff to stuff the chaff hive with? SETH SAGAR.

Grafton, Wis., July 10, 1888.

[Friend S., waste paper might be as good as chaff, but it would be altogether too expensive. It is by no means certain that it would be any better, or even as good.]

BAIT FOR BEE-HUNTING.

Please send me a prescription for preparing sweet bait that will draw bees far and near at any time of the year. A. L. GRESHAM.

Mill Spring, Mo., July 8, 1888.

[Friend G., bees are sometimes attracted by oil of anise or by burning some old pieces of comb containing pollen and honey on a plate. After starting them in this way, we give them honey diluted with water to about the consistency of raw nectar. See "Bee-Hunting," in the A B C of Bee Culture.]

FLYING DRONES.

I notice a great many drones, flying in my hives. Should that be allowed at this season of the year? I have had very strong swarms from all but one hive. The prospect for honey is small, compared with that of a neighbor who gives his bees no attention at all. E. M. TYSON.

King of Prussia, Pa., July 16, 1888.

[Friend T., the presence of so many flying drones just now indicates nothing very wrong. Just as soon as the honey harvest is cut off, the bees will kill the drones themselves, if they have a good fertile queen. If they have not they will retain the drones until one has been reared.]

A SWARM RETURNS SEVEN TIMES.

My bees have swarmed out seven times, and gone back to the old hive every time, so my one swarm is one swarm still. I can't tell what is the trouble with them, only I am about discouraged hiving them, only to have them go back in an hour or so.

MARTHA R. MATHEWS.

Coldwater, Mich., July 12, 1888.

[From your statement we should suppose that your queen had defective wings. The bees returning so many times indicates that she for some reason did not go out with them. If they have not done so already they will probably kill her. After a colony has made repeated attempts to cast a swarm they become disgusted with their reigning queen if she does not go forth. The result is, that we generally see another one in her place.]

BEES THAT WON'T GO ABOVE; WHAT'S THE MATTER?

My bees are not doing any thing this season in the way of storing surplus. Although they gather enough for themselves they will not work in the sections partly filled with comb. There is at least 15 pounds of honey in the brood-frames. They do nothing but rear brood; and a very few, compared with the number in the hive, gather any thing.

Sedalia, Mo., July 5, 1888. FRANK FEEKS.

[The reason your bees do not go up into the supers is because honey is probably not coming in fast enough. We have noticed the same condition of affairs in our own locality. Honey has been coming in very slowly. There ought to be more than 15 pounds of honey in the brood-nest, to start the bees going above.]

QUESTION 49.

Mr. O. O. Poppleton can tell us what the bees prefer, if he will take a peep into those Cuban box hives. I have transferred 12 here. All had the end of the comb to the entrance.

NON-SWARMING.

I have several hives that have not swarmed for 3 years. W. J. DRUMRIGHT.

Sarasota, Fla.

JUVENILE DEPARTMENT.

Every boy or girl, under 15 years of age, who writes a letter for this department, CONTAINING SOME VALUABLE FACT, NOT GENERALLY KNOWN, ON BEES OR OTHER MATTERS, will receive one of David Cook's excellent five-cent Sunday-school books. Many of these books contain the same matter that you find in Sunday-school books costing from $1.00 to $1.50. If you have had one or more books, give us the names that we may not send the same twice. We have now in stock six different books, as follows; viz.: Sheer Off, Silver Keys, The Giant-Killer; or, The Roby Family, Rescued from Egypt, Pilgrim's Progress, and Ten Nights in a Bar-Room. We have also Our Homes, Part I., and Our Homes, Part II. Besides the above books, you may have a photograph of our old house apiary, and a photograph of our own apiary, both taken a great many years ago. In the former is a picture of Novice, Blue Eyes, and Caddy, and a glimpse of Ernest. We have also some pretty little colored pictures of birds, fruits, flowers, etc., suitable for framing. You can have your choice of any one of the above pictures or books for every letter that gives us some valuable piece of information.

CONDUCTED BY ERNEST R. ROOT.

THIS time we have quite a lot of letters from the young folks, almost entirely on the subject of how they or their papas hive swarms. These are a little late to be seasonable; but as it is easier to write about things that have just transpired (before they "get cold"), our young friends are quite excusable. As these reports are fresh with recent experience we have no doubt but that we have gotten some facts that we might not otherwise have obtained. Besides the presents sent, we extend our thanks to you.

Now, what shall you write about next time? Let's see. Suppose you take for your next subject, How you or your papas stop robbing—whether in your own opinion it is the result of carelessness. Please tell us what would be the effect of closing the entrance of a colony on a hot day, to stop robbing. You need not try this experiment to find out, for I am going to guess you know already. You see, we want to find out how much you know about robbing.

A POWDER-CAN FOR A SWARMER.

My pa uses a powder-can to catch swarms in. He cuts out one end, and with a wad-cutter he cuts the holes in it. He likes it much better than the box, because it is so much lighter to handle, and the bees are so easily shaken out. **ALONZO A. GREEN.**

Lyons, Ohio, June 24, 1888.

HOW HATTIE'S PAPA HIVES BEES.

We have no hiving-boxes. Our bees always settle on the fruit-trees. When they settle up high, papa moves a table right under the tree, and sets the hive upon the table, then shakes the bees on it; and when they are low he spreads a sheet on the ground, and sets the hive on it. We have had a good many swarms this year. **HATTIE BROWN.**

Ashbysburg, Ky.

THE FIRST POLLEN.

Our bees get their first pollen from the pussy willow in February. I have two kinds of flowers in my garden, which bloom almost as early as the pussy willow. One is the variegated balm, which has a dark-red bloom. The bees get a red pollen from it. The other is the daffodil, which gives a yellow pollen. **ADDIE F. PALLIES.**

Mehama, Ore., Apr. 14, 1888.

20 STANDS OF BEES.

My uncle has about 20 stands of bees. We did not take any honey, last year; but in the fall they made honey enough to winter on. The honey did not taste like any I ever saw. **SADIE BROWN.**

Bloomfield, Ky.

HOW FANNIE HIVED TWO SWARMS.

I hived two swarms this summer. One alighted on a little limb, and I then cut it off and put it down by the mouth of the hive, and then smoked them in, and the other alighted on a limb where I could not do the same, so I set the hive as near as I could, and then took a broom and brushed them off and shook the limb also. **FANNIE BORTON.**

Flint, Mich.

And we suppose the bees of the last swarm were likewise successfully hived.

ANOTHER SWARM OF BEES WHICH LIVED OUT OF DOORS FOR SIX WEEKS WITHOUT PROTECTION.

Last summer one of the neighbors' children told me there was a swarm of bees on their fence, which I could have. I went home and told pa, and asked him for a hive. He thought it would be a little late swarm, but I persuaded him to come and see. When we got there he found a nice swarm of bees with combs, but not a spoonful of honey. He cut off the end of the rail, and carried them home on it. He wintered them safely, and we are expecting a swarm now. Those bees had been on the rail nearly six weeks. **ETHEL EDWARDS.**

Ingersoll, Ont., Canada, June 4, 1888.

You have indeed given us quite a valuable piece of information, friend Ethel. From your letter we take it that the swarm had little if any protection. We should like to know more about that swarm.

CLIPPED QUEENS PREFERRED.

My father has 12 swarms. He says that is all he wants, because they will supply us with honey, and he can sell all the swarms that come out. He has almost all methods for hiving bees, but he thinks the method of clipping the queen's wings is the best. This is the way he does it: After the queen is fertilized he clips her wings. When the bees swarm he finds the queen and puts her in a cage. Then he moves the hive they come out of away, and sets the new hive in its place and waits till they come back (for they will not alight without a queen). He then puts the queen on the alighting-board, and she goes in with the rest. Then he sets this hive where he wants it, and sets the old one back. I have hived but one swarm, and that was in the way described. We have not had much honey this year, as it is so far a poor season. **CHARLIE P. ORWICK.**

Centerville, Mich., July 14, 1888.

A CHINAMAN'S EXPERIENCE WITH DRONES; HE "NO LIKEE A HEAP BIG BEE."

Papa and Ernie and I went up on a hill one Sunday, and there were some stands of bees. They had some honey in them. I think I counted 9 of them. We found a bee-tree on the way back. A Chinaman was once hired in an apiary, and he didn't mind the stings of the bees very much; but when he came to a hive with a lot of drones in he started off, saying, "Me no likee heap big bee; he bite muchee." They had to take the drones in their hands and show him that they wouldn't sting, before they could get him back to his own work. Papa had some foundation on a bench, and we saw the bees buzzing around it. We watched them. They bit great pieces of it off, and carried it away.

Los Alamos, Cal., July 9, 1888. LEWIS HILTON.

RAY'S METHOD OF HIVING SWARMS.

When a swarm is about settled on a pear-tree, evergreen, or grapevine, we pick up our swarming-box, throw back the duck top, slip it under the swarm, and then give the limb a few small jerks. We then have about all in our cage. Next we throw back our duck top. We wait a little while till the outside bees can hear, see, and scent their little comrades in their wire cage. They will soon settle on the wires, and peep in, I suppose, to see mother. We then pick up our swarm and pour it in front of the hive prepared for them. RAY MURRAY.

Ada, Ohio, July 23, 1888.

Why, friend Ray, I don't know whether you knew it or not; at any rate, you employ almost exactly the plan of hiving swarms that we have recently adopted here at the Home of the Honey-Bees, which we like so well. From our present knowledge we believe there is nothing better than a wire-cloth cage large enough to confine two-thirds or all of the swarm, with a mouth wide enough to receive the bees shaken in, and so constructed as to close and confine the bees. The great trouble with most swarming-devices which we have seen is, that they will not hold the bees after they are captured.

A SWARMING-BOX TO HOLD A FRAME.

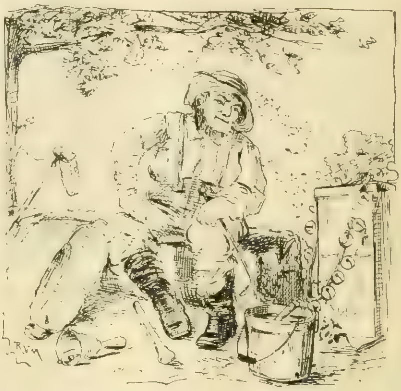
Pa was out harvesting one day a mile from the house, when a swarm of Italian bees came out and settled on a small apple-tree. As they were on a limb near the ground, ma and I thought we could hive them, so we took a sheet and spread it near the tree, then we took the hive and placed it on the sheet, on sticks. Then ma held a poke exactly under the swarm. I shook the limb, and the bees all fell off into the poke. Then ma took the bees and emptied them near the hive, but they went back on the limb. We took them off the second time, and they went back, so that made them cross, and they stung ma terribly, but I did not get one sting. We rang the bell for pa. He came and got his swarming-box and held it near the swarm, and kept shaking the limb until all the bees went into the box. He then carried them to the stand. His swarming-box is made just long enough to take a Simplicity frame. It is wider at the top than it is at the bottom. There is a pole in it to hold it up. He can hold it up as high as he wants to, or as low, or he can take the pole out entirely. He puts a frame in it before using, which has a comb in. Then he takes out the frame and puts it in the hive with the bees. CLARA STREBY.

Paw Paw, W. Va., July 9, 1888.

We are interested in your papa's swarming-device. Won't you ask him to send us a photograph of it, that we may have it engraved for GLEANINGS? You may then tell us more about it.

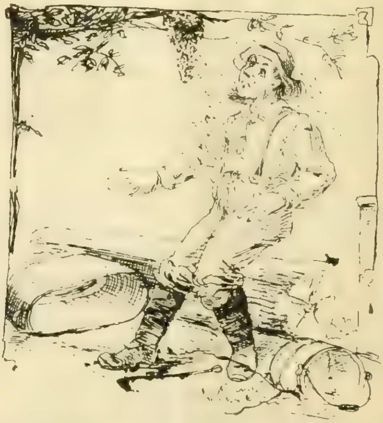
WATCHING THE BEES.

I don't er-jist ixactly know about them pesky bees,
Ner if they're gone back to their hive, er lit out fer the trees.
I guess I'll er-jist set 'n' rest on this 'ere busted gum,
'N' if they go to start agin, mebbe I'll hinder some
A beatin' of this biler here, 'n' jinglin' these 'ere things.



FARMER MCWHARTER'S SOLILOQUY.

Of all the plaguey things that lives er walks er flies er sings,
That's in the field, er in the wood, that has er tail, er wings,—
There's nuthin' that I hate so bad, ez bees with their tarnal stings.
I like to sit 'n' rest, 'n' let my mind meander, es it will,
Jest like them bees thet wander forth o'er wood 'n' vale 'n' hill.
But they come home all loaded down with honey jest ez full—
My mind returns ez empty ez the sack that's held the wool.
I like to think of the shinin shore, 'n' wonder where it is,
'N' all the friends that's gone before—of John 'n' Joe 'n' Sis;
'N' wonder if I'll ever reach that home of heavenly bliss,



'N' play the golden harp 'n'—geewhitaker! what's this?

PHILIP MCWHARTER.

OUR HOMES.

We know that all things work together for good to them that love God.—ROM. 8:28.

A TALK IN REGARD TO THE FAILURE OF THE HONEY CROP; AND SOMETHING ELSE THAT IS NOT EXACTLY ABOUT BEES AND HONEY.

DEAR friends, perhaps you think that we here at the Home of the Honey-Bees are taking the matter very easily and very coolly in regard to this our third season without any honey to speak of—at least, such is the state of affairs here, and to a greater or less extent in most localities. I know that many of you have been working hard, and watching expectantly for a reward for your labors, or some good evidence that there is to be a reward not very far off; and yet the summer of 1888 is almost gone by. Clover is gone, basswood is gone, and in some localities buckwheat is nearly gone, and no such yield of honey as we used to have a few years ago. Some of you have scraped up money, and may be borrowed it, to get supplies on the strength of what the A B C and GLEANINGS have taught; and may be you have made investments. You have had a good deal of faith in your humble servant A. I. Root; and now in this crisis, when this *third summer* has come and gone, and no such yield of honey as you have been told of has come to pass, what is to be done? What has your old friend and teacher to say under the circumstances? Is he going to evade the question, or pass over it lightly, and go off on to something else—may be tell you of some new trap or arrangement he has to sell you? God forbid! To tell the truth, I not only feel little like buying any thing myself, but I hesitate in advising any of the rest of you to make purchases—at least, I do not feel like advising you to buy bee-hives or section boxes just now, even if they are extra nice or extra cheap. There may be localities where this state of affairs has not come to pass. I know there are a few, and I trust there are many more where they are getting plentiful crops of honey that I have not heard of. But there is certainly a large part of our country (and when I speak of our country I mean Canada too, where the folks are *worse off* if any thing than they are here) where there is little or *no* honey. The question comes up, What is the reason that honey does not come in as it did once? In many localities it may be a good deal owing to the fact that we have chopped down our basswood-trees; but this does not explain the absence of clover honey. Why is it, that, with such a profusion of blossoms, we do not get honey as we used to get it? Candidly, I do not know. I do feel sure that we are going to have honey again—at least clover honey—in such large quantities as we have had it in the past; although were it not for these repeated failures, I should say probably next year would be a good one. It may not, however. Perhaps we had better base our plans to a large extent on the belief that we are not to have honey in such quantities as it used to come, say five years ago. I do not know what the matter is, and I do not know that the future will be any better; but, may the Lord be praised! I *do* know that all things shall work together for *good* to those that love him.

A great many of you, perhaps, have plenty to do, and quite a number, very likely, do not feel much troubled or cast down by the failures in honey-getting; but I do know that a good many of the friends of GLEANINGS feel discouraged, and would like my opinion in the matter, given fairly and frankly. In giving this opinion we shall have to consider this matter which has recently been discussed, as to what other business a bee-keeper should have. I do think it is best to have some other business, and have thought so for some time. What shall the business be? We can not purchase tools and outfits for a great many industries. We have not capital, neither do we want so many different things gathered about us. It is a misfortune to have a great lot of useless stuff lumbering up the premises. When I say *we* I mean to include ourselves here at the Home of the Honey-Bees. We shall, perhaps, for the next three or four months, stop our machinery, and let the greater part of our hands stop work; and this is the first time such a thing has happened in fifteen or twenty years. We shall want to be busy about something We may hire out and work for wages—at least, a part of us; but unless we have extra ability, or are skilled workmen in some department of mechanics, it may be hard to find work to do. Many of the bee-keeping friends have positions already, and have taken up bee-keeping only during their odd moments. If there is nothing to be done with bees for the next three or four months, what shall we do during these odd moments? What would the great Father be pleased to see us busy ourselves in doing—he who gave us the little text I have just quoted—"All things shall work together for good," etc.? I told you in our last issue that I had felt of late as if God were indicating to me what sort of advice I should give you. I have prayed to him over and over, dear friends, that he might enable me to give wise counsel, especially to those who want my advice and opinion. Well, you know in what direction my mind turns; you know what advice friend Terry has given in his strong earnest way. Just last evening I found something in the *American Garden*, from the pen of Charles Barnard, that seems to me to be on the right track.

Every time we have a lull in business it gives us an opportunity of fixing up things—of looking up the odds and ends—the refuse and rubbish; of utilizing the things that would go to waste were we not obliged to get down and save the pennies. Well, I feel so happy over making a regular house-cleaning of all our available effects, that I rather enjoy it. There is surely no comfort or happiness in waste, and any thing that causes us to economize and save is a blessing. May be some of us think we have been economizing and saving already; but I believe there are rich lessons to be learned yet in this line; in fact, I have sometimes thought that, when God sees we have gathered up the things going to waste, and utilized every little item, then he can consistently send us *more* blessings. The extract I wanted to take from the *American Garden* is as follows. Perhaps it will make you smile a little to see how much it sounds like the talk that friend Terry and I have been giving you for a year or two back.

> BY-PRODUCTS.
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> In every home-lot garden there are by-products, some worth money, others no money can buy. There are early peas. The peas are the direct crop, the empty pea-vines are the by-crop. Turnip-tops, radish-tops, pea-pods, bean-vines, potato-tops,—all these parts of our garden-plants that can not be eaten are by-crops worth real money. You can't exactly sell them in the market, but you can sell them to yourself by burying them as fast as they gather. In this way they become fertilizers, and save money in the manure-bill, and add money by increasing future crops. In my own little home lot, every thing, including all the waste from the kitchen, is buried in the soil every day. In this way not only is the troublesome "garbage question" settled, but the place is kept neat, sweet, and clean at all times. From a series of experiments I find that ordinary kitchen waste disappears and turns into good soil in about a week after it is buried in the ground. Thus a troublesome domestic by-product is sold to the garden, together with all the by-crops, from cabbage-leaves to onion-tops. It pays to keep a home lot, if for no other purpose than a bank in which to deposit unsalable by-products—a bank, too, that pays good dividends.
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> One of the most profitable by-crops in my home lot is red blood, which stands for good health. No "hundred doses for a dollar" for me, thank you! Does a cheerful headache rage by reason of much labor at a desk? Give me a hoe. It is the very staff of life. The garden is the cemetery for headaches. What if there be weariness of flesh after half a day in the cabbage-rows? It's only another name for a gorgeous appetite and a big sleep, and a feeling next day that the general universe has been made over new. The only way to treat illness is to nip it in the bud. A slight indisposition may be the seed of your very worst kind of a scrimmage with disease. Pure air, sunshine, labor with the hands on the ground, will in many a case blast the bud of sickness, and by filling the veins with good red blood save weeks of pain and long bills from the doctor and apothecary. Having been more or less of an invalid all my life, I know from actual positive experience that my home lot has this very year of grace turned in a by-product that, while it can not be measured in money, outweighs in value the entire first product of my garden patch. If there be any among you who rest in the shadow of impending illness, (and who does not?) let him excuse this preachment, for it is borne in upon me that good health is the greatest crop dug out of the ground. What if, by reason of mistakes, the home lot does not pay? This by-product will correct your ledger.

In speaking of this matter of by-products, I want to touch upon a subject that I have mentioned several times before. I mean the out-buildings adjoining our homes. During the two dry seasons of '86 and '87, the plan I described in the "New Agriculture" has worked very well; but this year, when the ground has been soaked with water all summer long, even during this present month of August, it has not worked so well. The *crops* over the covered reservoirs have done splendidly; but my good wife has objected most emphatically to the bad odor around our out building; and during the hot July weather it became so bad that it was evident something must be done. Ashes were thrown over the offensive matter, but that sent up great volumes of ammonia, which discolored the woodwork of the building, and made additional cleaning and scrubbing for the women-folks. Business was hurrying, and the horses were busy, so the matter was put off longer than it should have been, until my wife really felt like stirring up a civil war. To avert such a calamity, I dispatched the big wagon, with the top box on, to the peat swamp, for a great load of soft spongy peat, or muck. It was heaped up against the out-building, near the door. Then the whole interior of the vault was covered with several inches of the peat. This sort of peat, or muck, can be found in any swamp-hole in most localities. It dries out very quickly, and, when dry, is as light to handle as sawdust, or more so, and will absorb vast quantities of any liquid. The effect was magical. The bad odor was gone instantly, and now we keep a light tin pail full of peat, with a small fire-shovel in it, right convenient in the out-building, and the whole arrangement so commends itself to every member of the family, that there is now nothing offensive to sight or smell at any time. And what can be nicer for the garden than this peat, or muck, after it has served its office? Now, then, if any of us have not very much to do, let us see to our out-buildings. You can certainly find some of this peaty ground near by your homes. Pile it in a heap close by the door of your out-building, and the sun and air will always keep the surface dry enough to handle nicely. Teach the children habits of neatness and *sweetness* in their youth, and when they grow up they will carry those habits along with them. When our good friend Ivar S. Young came from Norway to pay us a visit, he said he expected to find something progressive here in America in the way of out-buildings, but he was a good deal disappointed. I should like to show him now just how the peat works, and I think he would not be disappointed any more. If you have a bit of ground where you raise vegetables, fruits, or flowers, the enhanced condition of these products will amply repay all trouble from collecting the peat.

If we are going to claim the promise of our opening text we must keep clean our spiritual natures as well as the physical. Only last week a well-dressed young man came into our town with a horse and buggy, drove up into the business part of the village, and announced that he was going to sell some jewelry. Nobody paid very much attention to him, for Jew peddlers are rather at a discount in our community. He held up some sleeve-buttons which he claimed were worth a dollar and a half. Some of the bystanders perhaps smiled at his innocence in thinking that anybody was going to buy sleeve-buttons of *him* at *any* price. He came down rapidly in price, and I believe he finally sold a pair for 25 cents. He then desired the customer to stand near by and not go away. This singular request attracted attention. When he had sold three or four more pair he gave each purchaser half a dollar as a reward for helping him to start a trade. My friends, what do you suppose the effect was? The aspect of affairs changed immediately. People crowded in from every direction, wide awake and full of enthusiasm at the prospect of getting *something* for *nothing*. Our friend explained that he did not expect to do much business till evening, and that he proposed to give away some money by way of an advertisement, to start the *evening's* business, He next sold some watch-chains for half a dollar apiece; and after quite a number had purchased, asking them to stand along in rows as before, he gave them back *twice* the money they had paid him. Our town now exhibited a scene something like our bee-friends see when the bees get to robbing. Laborers, mechanics, merchants, lawyers, doctors, and printers, it is said; crowded up eagerly. I do not know whether there were any ministers, and I am not sure there were any professors of religion in that crowd; but I trust there were not. From 50 to 70 people passed over their money for watch-chains, when they knew the goods were not worth it. In fact, the editor of our county paper, who had published a caution in reference to this very kind of work, and may be in regard to this very man, a year or two before, was one of the victims. After he had got his hands full of money, he, in a reckless way, took out a 20-dollar bill and doubled it up and put it inside of some kind of a watch, and dared any one to give him ten dollars for the watch, money and all. Two people purchased at once; but the 20-dollar bill had, by some sleight of hand, changed to a one-dollar bill. In perhaps one hour's time this fellow took 50 dollars from the hands of an intelligent, educated, and, I hope I may say, Christian people. I am sorry that such a thing happened; but, dear friends, there is an excellent moral to it. The little incident reminds us of the fact that average humanity has a wrong spirit in its heart. I am afraid that we, my friends, you and I, are not ready to stand the test when temptation comes suddenly upon us. Our hearts are certainly not *right in the sight of God* when we can be at any time entrapped into wanting *something* for *nothing*. What should a Christian do under such circumstances? Why, he should reply, simply, "No, thank you." And he should be able to say, at all times, and under all circumstances, and over and over again, if need be, "No, thank you," whenever anybody presumes we are ready to grasp eagerly for a *half-dollar* that can be obtained *without giving a fair equivalent.*

Much has been said on these pages lately about this matter of adulterating food products. The root of the evil, and the foundation of all these troubles, comes from a bad state of heart in the individuals. They are wanting something for nothing. A case comes up vividly to my mind just now. Stratagem peas are the largest and most desirable of any there are in the market. We get 40 cents a peck for them right along, when ordinary peas will not bring 20 cts The pods are so large that one can pick a bushel in almost no time; and the womenfolks can shell them with equal rapidity. It is a small task to get them ready for dinner. Well, the seed has always been very high. Even though the Stratagem has been before us for several years, last season they brought from ten to twelve dollars a bushel at retail. By consulting our seed catalogues to the trade, I found one dealer who offered this seed for seven dollars a bushel. He stands almost at the head of the wholesale trade. I purchased two bushels, and made three plantings before any of them were ready to harvest. Well, the first patch proved only one-third to one-half Stratagem peas. The others very much resemble the old Champion of England. The consequence was, we did not have nearly as many Stratagems as we expected, and the pickers were obliged to sort out the Stratagems, or pick them all together and *then* sort them. I thought that, perhaps, some Champion peas had been put into the same bag by mistake; but my second patch, and third, all produced Champions and Stratagems, *evenly distributed*, clear through the long rows. It could not have been accident; that is, I did not see how it could. The *seed peas* look so much alike that nobody can detect the difference, and the cheap common peas had been mixed *carefully*, clear through the two bushels. Our last patch was sown purposely for raising seed; but the only way I could get any seed was to sort the pods in nearly half an acre. I should have been very much better pleased to pay fourteen dollars for just the Stratagems *alone*, even if I got *less than a bushel*, for the labor of sorting them has been a great many times more than the value of the seed. So you see that I should have been *much better off* to have had seven or eight dollars taken out of my pocket,* than to have been cheated by having inferior seeds mixed with the good ones. A year ago last spring there was a great call for Black-seeded Dwarf German Wax beans. I give the whole name, because it describes the variety. Well, one seedsman after another announced, "Sold out," so that we were obliged to look over catalogues, and correspond, in order to keep customers supplied. You see, people a great many times get their ground all ready before they order their seed; and a seedsman who values his reputation will do almost any thing rather than say he is out. Well, I found some of the beans, at a very high price. The seeds looked exactly like the genuine—were uniform in size and appearance. When they came up, however, three-fourths of them, perhaps, produced late beans with common green pods. I made a second planting, to see there was no mistake. The bogus beans were, however, mixed evenly, clear through the bagful. I notified the seedsman, and he sent me some this spring that were all right; but the demand this year was, as last, greater than the supply, and I had to go to different places to get seed. Imagine my surprise to have the same experience over again! The first lot, with the counterfeit beans mixed evenly all through the bagful, came from Cleveland; the second lot, bought a year after, were fixed up exactly in the same way, only they had more of the counterfeits and less of the genuine, and came from New York city. The consequence is, two large patches of German Wax beans now show these late long-podded green ones, with only here and there a true German Wax. The plants are as unlike as any thing can be; but when the beans are ripe and shelled, no one can tell a particle of difference. You know I profess to be of the class who "thinketh no evil;" yet I can not avoid concluding that somebody is at the bottom of this whole matter of mixing garden-seeds that are alike in appearance. *Something* for *nothing*, again. Can you imagine the state of a man's heart who can sit down deliberately, and contrive to cheat his neighbors in garden-seeds? He gets a few paltry dollars—if his cheat succeeds. And thus the man who prepares his ground by the sweat of his brow, and cultivates and attends to his crop, finds in the end that he has got tares instead of wheat. If it were consistent with Christian character I should get mad, and declare I would raise my own seeds. In thinking it over, however, I have decided I will raise my own seeds, so far as I can consistently, without getting mad. Then I will write kind Christian-like letters to the man of whom I purchased those bad seeds, and we will ferret out the guilty party, if it is a possible thing to do. With those two exceptions I have had reason to feel proud of the great seedsmen of America, so it behooves us to be slow to anger, but to cultivate, rather, that virtue that "suffereth long and is kind." I know, friends, that may be you think I have got a good way off from my text, but I do not believe I have after all. You have no right to expect for a moment that "all things will work together for good" while you are open to offers of getting something for nothing. God's promised blessing can not be yours while you stop on the streets because some confidence man offers you half a dollar (with a watch-chain thrown in) for 25c.; nor when you mix poor seeds with good ones, to sell to your neighbor; nor when you put the best apples on top, and the gnarly and poor ones underneath; nor when you, by your actions, show that you expect to get for nothing any thing that is your neighbor's; because, if you love God, you must love your neighbor too. The Bible says so. See:

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*To be consistent with my text and teaching, I should like to have those who have purchased Stratagem peas of us, that have turned out as I have described, tell me how much will make the transaction satisfactory between them and myself.

> If a man say, I love God, and hateth his brother, he is a liar.—I. JOHN 4: 20.

And you know our text says, "All things shall work together for good to those who love the Lord." The man who puts counterfeit beans among the good seed can not love God. It is impossible. He belongs to the prince of darkness; for if he loved his fellow-man even a little, he would give him just as good beans to plant as he would plant himself under like circumstances.

Now, then, we have lately had some pretty hard flings at the Christian religion. Let us hunt up these fellows who are adulterating honey, if there be any to hunt up, and see whether they are professors of religion or not. Let us hunt up the man who mixes cheap seed with that which is scarce and expensive, to defraud his brother, and see if he *dare* have the cheek to profess to be a member of *any* church. Let us, who have stood up before men, and assumed the sacred responsibility of being followers of Christ, look well to *our* acts and *our* words, and to the goods we sell. May be before we get through we shall discover the key to the mystery as to *why* we are short of money, out of work, and have not good crops to sell.

REPORTS ENCOURAGING.

THE RIGHT VIEW OF THE CASE.

BEES wintered poorly, and the spring was very late. During the last of April and the first of May, I set out 29 colonies, 10 of them strong, and the other weak. Up to date (Aug. 4) I have taken from the six best colonies 400 lbs. of comb honey, and there is about 200 lbs. nearly ready in those hives now. The others have not done as well. I shall get in all about 800 lbs. comb, and 100 lbs. extracted honey. I have had 10 swarms come out. The honey is of an excellent quality, and brings, comb, 20 cts.; extracted, 18 cts. I find that in bee-keeping as in all other pursuits we have our advantages as well as disadvantages; and it is those who continue and persevere that succeed. If we meet with success one year we should not get too enthusiastic; and if we meet with reverses we should not get discouraged, but go right on from year to year, being cheerful alike over success and failure; and then we shall find in the end as good a reward in this as in almost any other work. My motto has been, "Support your business and your business will support you." I think this is, to a great degree, true. Whatever work we may be doing, we should give that work our watchful and prayerful attention, believing that the great Father will be just with us, giving us those things that he in his wisdom sees that we most need. He has promised to "withhold no good thing" from us. A. D. ELLINGWOOD.

Milan, N. H., Aug. 4, 1888.

AN EXTRA GOOD SEASON.

We have had an extra good season for clover honey here. Have had but one equal to it in the eleven years I have been keeping bees. E. D. HOWELL.

New Hampton, N. Y., Aug. 2, 1888.

SEVENTY-FIVE PER CENT OF A FULL CROP FOR SOUTHERN CALIFORNIA.

There are about 700 colonies of bees in De Luz against 1000 a year ago, a loss of about one-third last winter. About 75 per cent of a full crop has been taken. Only 600 lbs. of comb honey has been sold. We have been offered 10½ cts. for comb, and 4½ for extracted. The following is a tabulated report for this locality.

	No. colonies.	Lbs. comb.	Ext'd.
J. Orvis	60	600	5000
M. Decker	58	900	3600
A. J. Foss	185	12,600	
H. Root	80		5000
H. J. Camp	90		7000
S. Carr	80	3,600	1200
O. A. Stewart	100	4,200	4800
W. W. Houghton	70		9600

W. W. HOUGHTON.

De Luz, Cal., July 31, 1888.

FROM 69 TO 113, AND 600 LBS. OF HONEY.

The season here so far has been poor for honey, but good for increase where they were allowed their own way. From 69 stands, spring count, I have got about 400 lbs. extracted honey, and 200 lbs. comb honey in 1-lb. sections. Increased to 113, and sold 10 three-comb nuclei. I hived all new swarms on old combs, so that all the brood-chambers are well filled with honey. Many persons' bees here have more than trebled their number of swarms, but have not made a pound of surplus. I sell my comb honey at 15 cents; extracted, 10 cents. My Japanese buckwheat I got of you has been sown three weeks and is now knee-high, and just begining to bloom. I saw several bees at work on it this morning. S. L. SHERMAN.

Oskaloosa, Iowa, July 23, 1888.

700 LBS. FROM 26 COLONIES; HONEY SELLING AT 25 CENTS.

The honey-harvest is about over, although the bees are working some on wild carrot and white clover. There was no basswood honey. The bees did well for what time white clover was out, which was not as early, nor did it last as long as former years. From 26 colonies I received about 700 lbs. of nice honey. Sections, as a general thing, are well filled out. I do no extracting. There is very little new honey offered for sale yet. What I have sold I got 25 cents a box, 1 lb. Nearly all the honey this year is from white clover.

THE CHAPMAN HONEY-PLANT.

One word for the Chapman honey-plant. I have only nine plants, which are now coming in bloom. I counted from 4 to 6 bees to a ball. I think one acre of the plants would keep several colonies busy for a while. JOSIAH EASTBURN.

Fallsington, Pa., July 23, 1888.

THE SEASON HAS BEEN GOOD.

We have 16 stands. Some of them are in box hives yet. We have taken about 50 or 60 lbs. of honey so far, and some of the box hives contain over 100 lbs., which we have no way to get at without tearing them all up. We tilted one over this spring, and took out quite a lot of honey and old comb. The bees filled this up with new comb with a rush, and then swarmed three times. I transferred one about the last of June into a Simplicity, and they are doing nicely. We got a stray swarm 4 seasons ago, and we should have had 30 or 40 if we had kept them all, not counting the increase of those we killed and let escape. This season has been good so far, except basswood, which did poorly. We got honey from raspberries and blackberries, clover, milkweed, and Virginia creeper during June and early July, and goldenrod, wild cucumber, and many kinds of weeds during the remainder of the season. The bees are bringing in a great deal of pollen from corn at present. We started with 8 this spring.

THEO. B. HENDRICKSON.

Springdale, Pa., July 23, 1888.

GOOD FOR IMPORTED STOCK.

To-day I was down to Mr. C. Webber's apiary, about 7 miles north-east of here. I find his apiary in the best order of any in this locality. He has 240 colonies in all; 140 are new swarms, and all heavy. They are all from imported queens, some from you and some from Indiana, Georgia, and Florida. They are all good workers. He is able to take off 1000 lbs. now, and will have 15,000 lbs. of comb honey this fall.

Hillsborough, Wis., July 29, 1888. E. E. TONGUE.

A LITTLE MORE ENCOURAGING FROM MRS. AXTELL.

We are trying to improve our bees during their slack time from honey-gathering by raising many young pure queens, from our best colonies of course. We confidently expect a full crop, as all things seem to point to an abundant crop of fall flowers. Buckwheat seldom fails with us when all things seem so favorable, so we are holding our colonies strong by feeding a little each day at home. The small colonies (a few are small yet) and many strong ones are not getting a good living at our home apiary. In Timber apiary they are getting a little each day. The rains are bringing on the buckwheat most abundantly, and wild flowers also. The Chapman honey-plant grows so tall, from six to ten feet, that our heavy winds have broken it down badly—not only made it lean over, but broken off the stalks. But the sweet melissa is roaring with bees. I am inclined to think it is ahead of the Chapman plant, for this locality. MRS. L. C. AXTELL.

Roseville, Ill., July 25, 1888.

SO MUCH HONEY THAT THE MARKET IS WELL NIGH GLUTTED.

I have one hive of bees that I have taken 104 lbs. of nice section honey from up to date, and I feel satisfied I can yet get 100 more. There is so much honey here that the market is well nigh glutted, but no section honey near here but what I have. I get 12½ cts. for it. Extracted honey is worth 7 to 8 cts., and bulk comb honey (just as cut out of the old box gum) about the same as extracted. S. J. FOSTER.

Granger, Tex., July 25, 1888.

Your honey-market doesn't need to be glutted. By referring to our last statistics in regard to honey you will see that there are plenty of chances of reducing this glut in the market.

REPORTS DISCOURAGING.

NOT A CELL OF HONEY; GOING TO SELL OUT.

I CAN furnish you another discouraging report. I went into winter quarters with 75 stands of bees—50 old and 25 new. The new swarms all died. Some lived till spring, and by the time apple-blossoms came I have only 40 stands alive. I never had as much trouble with my bees robbing as I had this spring. I have not a single pound of surplus yet—no white clover here to speak of, that has bloomed. I have had only 3 swarms, which came out July 4, 15, 20. Last fall I took off a goodly number of crates with 1-lb. sections, some full and some partly filled with nice comb. These I put away and kept in nice shape till this spring, and put them on my hives just as I took them off; that is, the sections were never taken out of the crates.

As yet I can not see that the bees have stored any honey in the cells, but they may now, for my buckwheat is now in bloom. Bees have done badly here so far as I can hear—no honey, no swarms.

Atwood, Ill., July 23, 1888. J. W. C. GRAY.

ONLY 800 LBS. FROM 60 COLONIES.

Last season was considered very poor for honey in this section; but from 60 stands, spring count, I had 2500 lbs. white section honey, 500 lbs. very fine white extracted. This season, from the same number, and well cared for, 800 lbs. section and extracted will cover the white honey. I doubled down June 10, from 90 to 60, very strong, and have done all in my power to prevent increase.

McLane, Pa., July 28, 1888. A. W. HARRISON.

Flowers have been abundant, and crops are exceptionally good, but not one cell of honey so far as I know. Bees are mostly alive, carrying in pollen and rearing brood, but must be carried over winter by feeding. **G. C. Stokely.**

Arnoldville, Indian Ter., Aug. 2, 1888.

LITTLE HONEY; PROSPECTS POOR.

The honey crop is very poor here this season. From 35 extra-strong colonies I have got so far only 16 gallons extracted honey, not a pound of comb. Five built-out sections from last year; some had a little honey in when put on, but have not a drop to-day. Foundation has not been touched. We had a great deal of rain this month. It is getting very dry at present, and dusty, but heavy dew at nights. I expect good fall pasture. We had no white clover at all; but plenty of dog-fennel in place, which had for years past been rare. I am afraid we shall have little white clover next year, as I can see no young among the grass, and no old to bear seed for next crop. A Mr. Mansford, four miles southeast of here, reports 30 gallons extracted and 180 one-pound sections from 8 stands; but he had 31 acres of alsike clover inside of half a mile of him. **Geo. L. Hollenbach.**

Noblesville, Ind., July 26, 1888.

Friend H., your concluding sentence seems to be a pretty strong testimony in favor of alsike clover, and I do believe that 31 acres of it might make all the difference between success and failure to any moderate-sized apiary in its vicinity.

SUCCESSIVE YEARS OF FAILURE NOT ENCOURAGING.

As for the bees, no good. Basswood and white clover are gone, and no honey. Fall prospects are not bright. Much swarming has weakened our stocks; from 33 to 63 increase. How can successive years of failure inspire indomitable zeal in the pursuit of emoluments growing out of the top of a bee-hive? I feel disgusted and chagrined. Instructions are chaff. Read and practice, and, lo! you are no better off than the old box man across the way. It seems that the fools in this business are the hive-openers and bell-ringers, while the merchant of supplies is truly the nabob whose insides shake with the accumulated fat taken from the tired and almost empty corner of the poor fool's pocket-book who is talking beeology to his neighbors and friends. No reflection on the integrity of friend Root. **O. D. Oberlin.**

Peters, Ill., July 13, 1888.

Friend O., I am a little afraid that you are inclined to be prejudiced against capital. There may be nabobs in the supply-business, but I do not know of any. So far as I do know, supply-dealers are at present feeling about as blue as the honey-raisers. God has given some of us talents in one direction, and some in another; and although our lines of work are different, I think we should be careful about thinking evil of any particular class of people. Shall we not remember that capital would be of little use without labor, and also that labor would be of little use, comparatively, without capital. When both capital and labor go hand in hand, each glad of the privilege of helping the other, then each fulfills the purpose for which God created both; and in that way we glorify his holy name.

GLEANINGS IN BEE CULTURE.

Published Semi-Monthly.

A. I. ROOT,
EDITOR AND PUBLISHER,
MEDINA, OHIO.

TERMS: $1.00 PER YEAR, POSTPAID.

For Clubbing Rates, See First Page of Reading Matter.

MEDINA, AUG. 15, 1888.

And this commandment have we from him, That he who loveth God love his brother also.—I. John 4:21

THE DATE OF THE NEXT NATIONAL CONVENTION.

The date of the next National Convention is now fixed for oct. 3—5. We believe that hardly a better time could have been selected.

NOT JUST EXACTLY AS I MEANT IT.

On page 610, Aug. 1, I tried to say, "Even the garden of Eden itself;" but by some awful blunder somewhere it was made to read, "Even a weed in the garden itself." I think everybody must have been off on a vacation when the above was perpetrated, and may be the compositor was more experienced in weedy gardens than in the garden of Eden.

BOOKS ON CARP CULTURE, AND CARP IN GENERAL.

There are three things I want to notice in regard to carp. The first is, that I have succeeded in getting our carp so tame that I can take them out of the water with my hands—that is, while feeding them, admire their beauty, and put them back without alarming them very greatly either; and I really believe our carp-pond is worth all it costs, for the enjoyment it affords in playing with my fish. Secondly, our old friend John W. White, whom most of you remember, probably, has recovered so far from the orders that were poured in upon him a year ago that he is now ready to send out fish again at low prices. His address is Chatham Center, Medina Co., O. Last, but not least, our good friend L. B. Logan, editor of the *Carp Journal*, Youngstown, O., has just sent out the best book on carp culture ever before put in print; and I am feeling considerably troubled because it is a better book than my own is likely to be very soon. In fact, it is a great deal better book than I had expected to get from any source whatever. We are told, however, in the introductory, that friend Logan got his wife to help him, and I suppose this accounts for it all. The book has 130 pages, entirely devoted to carp culture, and it is full of nice pictures to make every thing plain. Friend L. did not study it all up himself, however, but the book embodies contributions and bright thoughts from different contributors to the *Carp Journal*, written at different times for two or three years back. The price is, by mail, postpaid, 65 cents. Our own book has got as far along as 38 pages. One reason why I have been so slow about it is, that I want to experiment and test a great many different matters before I put them into book form. My book will probably cover different ground from friend Logan's; but I believe it will pay every man, who has a carp-pond, to have both books. If you can not get more than one, buy friend Logan's. Mailed from here at price stated.

FALSE STATEMENTS IN REGARD TO THE HONEY BUSINESS.

On page 567 of our issue for July 15, we copy a report from the Microscopic Society of St. Louis, and at the close of it I took the responsibility of saying that the report was not true, that, out of several hundred samples of honey, the majority of them were adulterated, The editor of the St. Louis *Journal of Agriculture*, in his issue of Aug. 2, admits that I am right about it, and makes a handsome apology. The blunder all rests on a reporter who was present at the meeting of the Microscopic Society. Of course, as the report was only a sensational one the papers took it up and copied it. The editor closes with the following:

> The real facts now developed show how imaginative a reporter may be, and further show that an expert microscopist has been unable to detect any evidence of adulteration in any one of 20 specimens of honey indiscriminately collected in St. Louis, all of which is to the credit of honey-producers and of retail dealers in St. Louis. We are gratified at so pleasant an outcome to the matter, which had its origin in a grievous misstatement of facts on the part of a reporter. We thank brother Root for his kindly allusion to the Journal of Agriculture, and will further thank him if he will give this statement a place in GLEANINGS.

Perhaps we should add, that the original false statement was inserted unbeknown to the editor of the Bee Department at all, in the *Journal of Agriculture*. It occurs to me right here, that the chief editor of any paper or publication ought to have perfect knowledge of every word designed for print, before it gets into his paper.

MISTAKEN REPORTS ABOUT THE ADULTERATION OF ARTICLES OF FOOD.

In a line with the excellent article from Prof. Cook in this issue, page 640, we take pleasure in copying the following from the report of the Dairy Commissioner of New Jersey:

> CANNED GOODS.
>
> Several reports of sickness, said to have been caused by canned foods, were investigated during the year It was my practice to follow up immediately all rumors or reports published in the journals, and some person was commissioned to make a searching inquiry as soon as possible. The result of these investigations showed that, in every instance, the report was without foundation in fact. As an instance of the unreliability of these rumors, I may mention the report printed in nearly all the papers, to the effect that a gentleman living in the southern part of the State had been made seriously ill by eating canned corn. Investigation showed that the person had had no corn whatever, and that his illness was in no way due to food.
>
> CANDIES.
>
> Investigations have been made into the composition of some of the candy sold in this State, and the results, so far, have been satisfactory, proving that little dangerous or poisonous material is sold. In May a report appeared in the Hoboken papers that children had been poisoned by eating candy, and steps were immediately taken to ascertain the truth of the report. Portions of the candy were obtained and sent to Prof. A. R. Leeds, for analysis. His report showed that the candy did not contain any poisonous substance, but the trouble was probably due to the feeding to a child large quantities of candy. The attending physician subsequently stated that "the illness was due to the mechanical stoppage of the bowels by eating the paper surrounding the candy."
>
> The coloring materials now used in the manufacture of candy are rarely poisonous.

I have for a long time been satisfied that most of the talk about poison in canned goods, and also in candies, was more of a sensational scare than any thing else. It was a sort of nice thing for the newspapers to pass around, with the pretense of warning the public against terrible dangers. I am glad to know that it is not true, that any one in our land would put any thing into candy made specially for children, that would do them harm. This fallacy has become so widespread that it seems almost folly to attempt to correct it. A runner for a wholesale grocery was here a few days ago, who flatly declared that granulated sugar was on the market, adulterated to such an extent that more than half was something besides sugar. The sugar they sold at *their* house was all pure and genuine, of course. I tried to convince our friend that he was mistaken, and that there was no sweet substance known that would dissolve in water, and at the same time closely imitate granulated sugar, but I had to give him up.

CHOICE NEW COMB HONEY.

We have just secured some choice comb honey in 1-lb. sections, put up in 24-lb. single-tier cases, from our neighbor W. H. Shane, of Chatham. He is the man who *always* gets a crop of honey, whether the season is good or poor. He will have about 2000 lbs. this year. With the present outlook for honey, we feel justified in starting this at 21 cts. per lb. in single-case lots; 20½ cts. in lots of 5 or more cases, and we may advance in the near future.

A. I. ROOT, Medina, Ohio.

ITALIAN BEES AND QUEENS.

One untested queen, 75 cts.; three for $2.00; for more than three, 60 cts. each. Tested queens, $1.25 each.

H. G. FRAME,
5-15 d **North Manchester, Ind.**

J. C. Frisbee, Suffolk, Va.,

Wants Your Address for his Order-Blank for Your Order, to be Delivered Next Spring for

BEES, QUEENS, HIVES,

AND ALL SUPPLIES, CHEAP.

Address as above. 16-15db

DADANT'S FOUNDATION FACTORY, WHOLESALE AND RETAIL. See advertisement in another column 3btfd

Black and Hybrid Queens For Sale.

For the benefit of friends who have black or hybrid queens which they want to dispose of, we will insert notices free of charge, as below. We do this because there is hardly value enough to these queens to pay for buying them up and keeping them in stock; and yet it is oftentimes quite an accommodation to those who can not afford higher-priced ones.

Hybrid queens, four for $1.00.
WM. BARTH, Petersburg, Mahoning Co., O.

I will have some 12 or 14 black queens about Aug. 10, which I will mail in my Safe cages for 25 cents each, with no other guarantee than safe delivery. A few hybrids at 50 cts., in same cage.
S. A. DYKE, Pomeroy, Ohio.

Very prolific hybrid queens at 20 cts. each, or I will kill them.
J. H. JOHNSON,
Middaugh, Northampton Co., Pa.

I have 6 hybrid queens, extra layers, to dispose of at 40 cts. each.
SAMUEL SEITZ, Clarence, N. Y.

I have about 30 choice hybrid queens, mostly mismated Italians, which I will sell at 30 cts. each, or four for $1.00. By return mail.
JNO. M. KALE, Newton Falls, O.

Three or four hybrid Italian queens for sale, in Peet's cages, at 25 cts. each. Send money when you receive queens.
G. WIEDERHOLD,
Yonkers, Westchester Co., N. Y.

I am Italianizing my neighbors' bees as fast as they let me, and shall have black and hybrid queens to sell as I get them. I hate to kill them, therefore I will send them to any address, C. O. D., for 25 cts. for blacks, and 30 cts. for hybrid.
F. P. HISH, Henton, Shelby Co., Ill.

We have 25 mismated Italian queens ready to send by return mail, at 40 cts. each, or 3 for $1.00. These queens have been reared this season. They are nearly pure, but not up to standard of purity. We guarantee safe arrival, or money will be cheerfully refunded if not satisfied. Address
HILLSIDE APIARY, Douglas, Putnam Co., O.

NEARLY THIRTY TONS
—OF—
DADANT'S FOUNDATION
SOLD IN 1887.

It is kept for sale by Messrs. T. G. Newman & Son, Chicago, Ill.; C. F. Muth, Cincinnati, O.; Jas. Heddon, Dowagiac, Mich.; F. L. Dougherty, Indianapolis, Ind.; B. J. Miller & Co., Nappanee, Ind.; E. S. Armstrong, Jerseyville, Ill.; E. Kretchmer, Coburg, Iowa; P. L. Viallon, Bayou Goula, La., M. J. Dickason, Hiawatha, Kansas; J. W. Porter, Charlottesville, Albemarle Co., Va.; E. R. Newcomb, Pleasant Valley, Dutchess Co., N. Y.; D. A. Fuller, Cherry Valley, Ill.; J. B. Mason & Sons, Mechanic Falls, Maine; G. L. Tinker, New Philadelphia, O., Jos. Nysewander, Des Moines, Ia.; C. H. Green, Waukesha, Wis.; G. B. Lewis & Co., Watertown, Wis.; J. Mattoon, and W. J. Stratton, Atwater, O., Oliver Foster, Mt. Vernon, Iowa; C. Hertel, Freeburg, Ill.; Geo. E. Hilton, Fremont, Mich.; J. M. Clark & Co., 1409 15th St., Denver, Colo.; Goodell & Woodworth Mfg. Co., Rock Falls, Ill.; J. A. Roberts, Edgar, Neb., E. L. Goold & Co., Brantford, Ontario, Canada; J. N. Heater, Columbus, Neb., and numerous other dealers.

Write for *free* samples, and price list of bee supplies. We *guarantee every inch* of our foundation *equal to sample in every respect.* Every one who buys it is pleased with it.

CHAS. DADANT & SON,
3btfd **Hamilton, Hancock Co., Illinois.**

☞In responding to this advertisement mention GLEANINGS.

READ THIS!

I will sell one-story Simplicity hives with portico and a two-frame nucleus, with queen, golden Italian, tested, through the season, for $2.50. Untested queens, $1.00; $10.00 per dozen.

MRS. OLIVER COLE,
Sherburne, Chenango Co., N. Y.
Chenango Valley Apiary. 6tfdb

☞In responding to this advertisement mention GLEANINGS.

BEES and queens cheap. Tested queen, $1.50; untested, 75 cts. Bees, per lb., 85 cts. Nuclei a specialty. Send card for price list.

MISS A. M. TAYLOR,
15tfdb Mulberry Grove, Bond Co., Ill. Box 77.

A POSITIVE FACT.

QUEENS BY RETURN MAIL FROM THE OLD AND RELIABLE

KNICKERBOCKER BEE-FARM

(Established 1880).

Warranted, $1.00; tested, $2.00. Special rates on large orders. Circular free. 15-16-17d

GEO. H. KNICKERBOCKER,
Box 41. Pine Plains, Dutchess Co., N. Y.

ITALIAN QUEENS.

Untested, 50 cts.; tested, $1.00. Untested, per dozen, $8.00.

I. GOOD,
10tfdb **Sparta, White Co., Tenn.**

☞In responding to this advertisement mention GLEANINGS.

G. B. LEWIS & CO.

WE make the best Bee-Hives, the best Sections, the best Shipping-Crates, the best Frames, &c.

☞We sell them at the Lowest Prices.

Write for free Illustrated Catalogue.

G. B. LEWIS & CO.,
1tfdb WATERTOWN, WIS.

☞In responding to this advertisement mention GLEANINGS.

Samples of the American Apiculturist

sent free. Also our price list of the best strain of pure Italian queens. Address 9tfdb
APICULTURIST, Wenham, Essex Co., Mass.

A RARE CHANCE
IN CALIFORNIA.

FOR SALE.—My apiary, and fixtures for producing comb honey. A bee-range unexcelled in California. Nine acres of raisin grapes, $1000 worth of grapes now on the vines. A rare chance for a man of some means to get hold of 320 acres of government land. Address

J. P. ISRAEL,
13-16db **Olivenhain, San Diego Co., Cal.**

☞In responding to this advertisement mention GLEANINGS.

A HOME IN THE SUNNY SOUTH.

350 acres, 1½ miles from Cuthbert, the city of schools and churches. Land comparatively level. Watered by never-failing springs and a creek; 2 carp-ponds; 29 stands of bees; 4 new 2-room tenant-houses, with well at each. Seven varieties of fruit. Dwelling has four plastered rooms. No malaria. Titles perfect. Price $4000; one-half cash, balance 8 per cent.

L. A. DUGGAN,
14-16-18d Cuthbert, Randolph Co., Ga.

☞In responding to this advertisement mention GLEANINGS.

RUBBER ✻ STAMPS.

I will send the new *Novelty pen and pencil stamp,* from one to four lines, for *50 cts.* postpaid, with ink and box. Also the *Midget self-inker* at reduced prices. Send for circular.

15-16d F. A. MURPHY, Delhi, N. Y.

J. F. Wood IS NOW PREPARED TO send promptly those beautiful Italian queens (every one warranted) that have given such universal satisfaction the past three years, at the low price of 75 cts. each; $4.25 for 6; $8.00 for 12. Ninety-eight per cent of all queens sold last season proved purely mated.

J. F. WOOD,
13tfdb *Mention Gleanings.* North Prescott, Mass.

For Sale.—50 Colonies Italian Bees,

Strong, on 8 L. frames, with brood and tested queen, in shipping-box, $5.00 each; or will sell bees by the pound. No foul brood. A. A. FRADENBURG,
14tfdb. Port Washington, Ohio.

☞In responding to this advertisement mention GLEANINGS.

"FEEDING BACK."

There was probably never before gathered together so much reliable information upon the above subject as is to be found in

THE BEE-KEEPERS' REVIEW

for July. If you have, or expect to have, unfinished sections, read this No. If you have failed to make a success of "feeding back," its perusal may show you where you made your mistake. The August issue will be a "Fair No." Price of the REVIEW, 50 cts. a year. Samples free. Back numbers can be furnished.

THE PRODUCTION OF COMB HONEY.

A neat little book of 45 pages; price 25 cts. The REVIEW and this book for 65 cts. Stamps taken, either U. S. or Canadian. Address

W. Z. HUTCHINSON,
613 Wood St. **Flint, Mich.**

☞In responding to this advertisement mention GLEANINGS.

FOLDING BOXES.

Enclose your COMB HONEY in our Cartons Prices Reduced for 1888. Sample 5c. 20 page Catalogue of Glass Jars, Honey Labels, etc., FREE. Send for it. Address

A. O. CRAWFORD, S. Weymouth, Mass. 10-20db.

☞In responding to this advertisement mention GLEANINGS.

MASS.

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CONVENTION NOTICES.

The Susq. Co. Bee-keepers' Association will meet in the Court-house, at Montrose, Pa., on Saturday, Sept. 8, at ten o'clock. The following subjects will be considered at that time: 1. Preparing bees for winter. 2. Preparing for and marketing surplus honey. 3. Does the raising of small fruit conflict with bee-keeping? All bee-keepers are cordially invited to attend. H. M. SEELEY, Sec.

The Ohio State Bee-keepers' Association will hold its 6th annual meeting in joint convention with the North American Bee-keepers' Society, at Columbus, Oct. 3, 4, and 5. A special business session of the Ohio Bee keepers' Association will be held Oct. 4, to elect officers for the coming year, and for the transaction of other business. This business meeting will not interfere with the regular programme of the national convention of the same day. FRANK A. EATON, Sec.

Wants or Exchange Department.

Notices will be inserted under this head at one-half our usual rates. All ad's intended for this department must not exceed 5 lines, and you must SAY you want your ad. in this department, or we will not be responsible for any error. You can have the notice as many lines as you please; but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale can not be inserted under this head. For such our regular rates of 20 cts. a line will be charged, and they will be put with the regular advertisements.

DO you wish to exchange extracted honey for supplies? If so, write at once to
15tfdb CHAS. H. SMITH, Pittsfield, Mass.

WANTED.—To exchange choice Italian queens for comb or extracted honey. Correspondence solicited. JAMES F. WOOD,
13tfdb North Prescott, Mass.

WANTED.—To exchange Italian bees for a first-class 48-inch bicycle or a foot-power turning-lathe. Engine lathe preferred. 14tfdb
D. S. BASSETT, Farnumsville, Worcester Co., Mass.

WANTED.—An honest and capable young man who has had some practical experience in the bee business, that would like to buy a half-interest in an established apiary of 250 hives of bees, and bee-house, cellar, extractors, etc. I have also probably 400 hives of empty comb, 200 of them extra thick combs, that have been used in extracting, which are valuable to those who know their worth. Will sell a half-interest in all at a very low price to the right kind of a man.
16-17-18 O. R. COE, Windham, N. Y.

WANTED.—To exchange for extracted honey, a 10 h. p. horizontal engine, worth $200. I will give somebody a rare bargain. Speak quick.
15tfdb C. H. SMITH, Pittsfield, Mass.

WANTED.—To exchange Cuthbert raspberry-plants for nursery stock, Italian queens, fowls, etc.; also bee-keepers' supplies (new), for machinery, honey, or offers. C. W. COSTELLOW,
16-17 Waterboro, York Co., Me.

WANTED.—To exchange Cuthbert and Tyler berry-plants for beeswax or female parrots, double-barrel shot-gun, breech-loading, 12 gauge.
17-18d M. ISBELL, Norwich, N. Y.

WANTED.—To exchange 1 4x4 Harrison lens and box; 4 one-fourth gem lens and box; 1 camera-stand, 14 x 17; 1 fine [illegible] inch burnisher; 1 air-brush; two 6 x 8 back-grounds and all fixtures for a first-class gallery, actual value $350. Will exchange a part or all for $200 worth of stock, foundation, or any thing useful. Write for complete list. 17d
J. C. FRISBEE, Suffolk, Nansemond Co., Va.

WANTED.—To exchange, vegetable and flower seeds, campaign note-heads and envelopes (printed to order), reading-matter, etc., for Indian stone implements or relics of any description. Write what you have. A. T. COOK, Clinton Hollow, N. Y.

WANTED.—To exchange Simplicity hives, fdn., bees, or queens of the Doolittle strain, for a Barnes saw, mortising or tenoning machine, or offers. Address Lock Box 888, 17d
Shenandoah, Page Co., Iowa.

WANTED.—To exchange full colonies of bees, $5.00, for poultry, seeds, tools, honey-boards, fdn., sections, F. P. saw, or any thing I can use on farm or apiary. W. H. LAWS, Lavaca, Ark.
16tfdb Ex. Office, Ft. Smith.

WANTED.—To exchange S. B. shotgun, Mrs. Cotton on bee culture, and A B C of Bee Culture, for books on Bible readings and Bible study, or other books appropriate for a young Christian to read.
17d WM. ELWICK, Decorah, Ia.

WANTED.—To exchange one silver hunting-case Waltham watch, key-wind; one 32 cal. breech-loading rifle, all in good order, for Barnes or other foot-power saw, for hive-making. Address 17d
A. S. DAVISON, Aullville, Lafayette Co., Mo.

WANTED.—To exchange for something useful, Italian bees and queens. Address 17d
OTTO KLEINOW, No. 150 Military Av., Detroit, Mich.

WANTED.—To exchange for extracted honey, Italian bees in Simplicity hives. Speak quick.
17d J. A. BURBANK, JR., Pittsfield, Mass.

Black and Hybrid Queens For Sale.

For the benefit of friends who have black or hybrid queens which they want to dispose of, we will insert notices free of charge, as below. We do this because there is hardly value enough to these queens to pay for buying them up and keeping them in stock; and yet it is oftentimes quite an accommodation to those who can not afford higher-priced ones.

I have 15 or 20 black and hybrid queens to dispose of at 15 cents apiece, or 2 dollars for the lot, in introducing-cages. All good serviceable queens. Send at once if you want them. F. P. CLARE.
Oliver's Ferry, Ont., Can.

I have a few Italian queens, mismated, very prolific, which I will sell at 15 cents each.
H. D. EDWARDS, Delhi, Ill.

I have 10 or 12 mismated Italian queens that I will sell for 25c each. W. S. WRIGHT,
Battle Creek, Mich.

I still have some good black queens, which I will send by return mail in new Peet cages (and guarantee safe arrival) at 30 cts. each, or 4 for $1.00. They were reared in 1887; good layers, and mostly mated with Italian drones. LESLIE STEWART,
Jefferson, Scho. Co., N. Y.

A Four-Color Label for Only 75 Cts. Per Thousand!

Just think of it! we can furnish you a very neat *four-color* label, with your name and address, with the choice of having either "comb" or "extracted" before the word "honey," for only 75 cts. per thousand; 50 cts. per 500, or 30 cts. for 250, postpaid. The size of the label is 2½ x 1 inch—just right to go round the neck of a bottle, to put on a section, or to adorn the front of a honey-tumbler. Send for our special label catalogue for samples of this and many other pretty designs in label work.

A. I. ROOT, Medina, Ohio.

HONEY COLUMN.

CITY MARKETS.

ALBANY.—*Honey.*—We quote new honey, light, ¾-lb. sections, 16@18; light 1½-lb. sections, 14@15. Mixed 1½-lb., 12@15. Light extracted, in large cans or kegs, 7@9; same mixed, 6@8. Having made a specialty of selling honey for 10 years, we have established a trade that depend on us for their supplies, and we have place for more honey every season. More consignments solicited. Liberal advances made.
H. R. WRIGHT,
Aug. 22. Albany, N. Y.

NEW YORK.—*Honey.*—The market is quite bare of extracted honey. Choice white clover or basswood will bring 7½@8 on arrival. We quote Southern extracted at from 55@60c per gallon, as to quality.
Beeswax.—Dull at 23c.
Aug. 23. HILDRETH BROS. & SEGELKEN.
28 & 20 West Broadway, New York.

COLUMBUS.—*Honey.*—The market is very quiet on extracted stock, and dark grades of medium are fairly active at 10@12. For new light stock, the demand is good and barely supplied at 14@16, the finer honey being picked up first. *Beeswax*, none on market, nor in demand. The demand for honey has increased largely during the last ten days, and old stock is all gone.
Aug. 21. EARLE CLICKENGER,
Columbus, Ohio.

DETROIT.—*Honey.*—Best new white comb, 15@16. Very little new in the market, and sales slow. The market here for comb honey is too low, taking the short crop into consideration. It would be good policy for the bee-keepers to hold their crop until later in the season.
Beeswax, in less demand, and quoted at 21@22.
Bell Branch, Mich., Aug. 22. M. H. HUNT.

CINCINNATI.—*Honey.*—There is a very quiet demand for all kinds of honey. Extracted brings 5@8 on arrival. Prices for comb honey are nominal. It sells at 12@15 in the jobbing way. A few small arrivals of new comb honey made their appearance, and sold at 14@16c. *Beeswax* is in good demand at 20@22 on arrival, for good to choice yellow.
CHAS. F. MUTH & SON,
Aug. 24. Cincinnati, Ohio.

ST. LOUIS.—*Honey.*—We have to report a quiet market. We quote strained and extracted, in barrels, 4½@5½; in cans, 7½@9. Comb, 13@15.
Beeswax, prime, 21.
Aug. 22. D. G. TUTT GROCER CO.,
St. Louis, Mo.

BOSTON.—*Honey.*—We have received two consignments of new honey, and are selling at 18c per pound. This honey is from Vermont, and is a very good quality. Old honey is all sold.
BLAKE & RIPLEY,
Aug. 22. 57 Chatham St., Boston, Mass.

NEW YORK.—*Honey.*—The market is pretty well cleaned out of old stock. New goods, too early to name price. THURBER, WHYLAND & CO.,
Aug. 22. New York.

CHICAGO.—*Honey.*—There is no change since our last quotations. Receipts of new crop very light.
R. A. BURNETT,
Aug. 22. 161 So. Water St., Chicago, Ill.

KANSAS CITY.—*Honey.*—We quote: New 1-lb. comb honey, 18; 2-lb. do., 15. California 1-lb. comb, 18; 2-lb. do., 15. Cal. extracted white, 7½; amber, 7; State, extracted white, 7. *Beeswax*, 18@20.
CLEMONS, CLOON & CO.,
Aug. 22. Kansas City, Mo.

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Aug. 24. BLAKE & RIPLEY,
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The Sept. No. will be devoted to "Food and its Relation to the Wintering of Bees." Price of the REVIEW, 50 cts. a year. Samples free. Back numbers can be furnished.

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The Darke County (O.) Union Bee-keepers' Society will hold a basket meeting on the Greenville fairgrounds, Friday, Sept. 7, 1888.
J. A. ROE, Sec'y.

GLEANINGS IN BEE CULTURE.

DEVOTED TO BEES, HONEY, & HOME INTERESTS.

F. R. Whiting

Vol. XVI. SEPT. 1, 1888. No. 17.

TERMS: $1.00 PER ANNUM, IN ADVANCE; 2 Copies for $1.90; 3 for $2.75; 5 for $4.00; 10 or more, 75 cts. each. Single number, 5 cts. Additions to clubs may be made at club rates. Above are all to be sent to ONE POSTOFFICE.

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SUGAR FEEDING.

SHALL WE USE SUGAR FOR WINTERING, OR HONEY?

THE question as to feeding sugar for winter stores is one that has been considerably discussed, not always, as it seems to me, in the most dispassionate manner. On the one hand, some have apparently taken the ground that, whoever should feed a pound of sugar to his bees was doing a great wrong to the whole fraternity, by arousing a suspicion of adulteration in the minds of the public, and throwing just so much more honey unnecessarily upon the market, thus aiding the sugar-trade at the expense of the honey-trade. On the other hand, some have seemed to think, "Just so long as I can get more for a pound of honey than a pound of sugar syrup costs me, it is the right thing for me to feed sugar, no matter what others may think." Probably there is some right and some wrong on both sides. Much depends upon the standpoint from which we view things, always keeping in mind the words of Paul, "Look not every man on his own things, but every man also on the things of others."

The man who is so situated that his bees have abundant healthy stores of their own gathering, and who can not get nearly as much for this honey if he extracted it as it would cost him to replace it with sugar stores, would not be so foolish as to feed sugar; and it is natural that, in view of the low price he is getting, and the plethoric state of the market, he should think *no* one should feed sugar. He reasons that, if it is wise and right for one to do so, it is right for all; and that if all do so, the result will be something like this: If the average yield of a colony is 75 lbs., and 25 lbs. more is extracted to be replaced by sugar syrup, thus throwing 100 lbs. on the market, instead of 75 for every colony, only three-fourths of the price will be obtained, and he will lose one-fourth of his earnings, with no corresponding gain by any one. Without stopping to show that there is some erroneous reasoning in this, I will give a view from another standpoint and give an actual case in my own experience as an illustration.

The summer of 1887 was so disastrous that I received practically no surplus, and was left with empty combs for winter. The question was, Shall I buy honey or sugar? Under the circumstances I bought sugar. I bought and fed 9 barrels, or 2800 pounds, paying therefor $190. Allowing that 3 lbs. of water to 10 lbs. of sugar makes a syrup equivalent to good ripe honey, my 2800 lbs. of sugar was, for feeding purposes, equal to 3640 lbs. of honey. I do not think I could have bought honey such as I would have been willing to use, for less than 8 cents per lb., free of freight. That would have made the cost of the honey $291, or $101 more than the sugar. I think almost any one would have decided just as I did.

But I think I hear some one say, "How about 'looking on the things of others'"? It is by no means always easy to decide just how far the things of others are to be considered; but I feel clear that, for the sake of a little gain to myself, I should not entail a great loss upon bee-keepers in general. In this case, however, I feel that a different decision, bringing to me a loss of $100, would not have resulted in a corresponding gain to the fraternity. I think it is right to have always in mind what will help our business. If a farmer were to make a specialty of raising potatoes, and never had any on his own table, we should think he was hardly doing his share toward keeping up the potato-market; but we should hardly expect him to have his table loaded with potatoes, to the exclusion of all other food. A line must be drawn somewhere between, and perhaps no two persons would agree just exactly where to draw the line.

It may be thought, by some, that it is all right, in a failure of the honey-crop, when feed must be bought, to buy sugar rather than honey; but that it is quite wrong to take away honey when the bees have enough to winter on, and replace it with sugar. I do not see that the cases are materially different, *if* the matter of loss and gain is the same in each. Unless, however, a considerable gain is to be made by doing otherwise, I prefer to let the bees gather and use their own stores. It is better for the honey-market. It gives less chance for the cry of adulteration, and it is less trouble. Bee-keeping is not one of the fixed sciences, and it would not surprise me if a good many who practice contracting the brood-nest to such an extent as to necessitate feeding may change their views. Just how and when to contract to greatest advantage, is to me, at least, not a fully solved problem. C. C. Miller.

Marengo, Ill.

Friend M., you have covered the subject pretty well; but there is one point where you have not laid emphasis enough. If the bees have stores of honey that you suppose to be good, already sealed up in their combs, it will hardly pay to uncap it and throw it out, then feed sugar syrup enough to get them to store and ripen it, and then cap it over. I do not believe that such an operation would pay, even if you could get 15 cents a pound for extracted honey, and could buy white sugar for 8 cents, as so much would be lost in the operation of ripening and sealing over. Where we must buy either sugar or honey, I would, however, without hesitation, buy the sugar, even if I could get honey at 8 cents or sugar at 8 cents; and in buying honey I would be very careful to know that, by no possibility, could this purchased honey have any foul brood in it.

FROM GERMANY.

SOMETHING ABOUT THE HONEY-YIELD AND COMB FOUNDATION.

The bee-papers of America tell us of a cold and backward spring in America, and I must confess it was no better in Germany. In spite of this we had, however, in some sections of our country, some swarms in the month of May. This was the case where the bilberry abounded in our forests, and rape bloomed in the spring. My bees had only a few days of fine weather to frequent this honey source, but I do not need to do any spring feeding. The old saying of bee-keepers here is true: "One drop of fresh honey that the bees carry into their entrance is of greater benefit to them than three times as much as one feeds them." Rape is always the best honey source in early spring I know of. The only drawback with it is, that the weather is seldom favorable when it is in full bloom. But only a few days of good flight, and all is well. Where the weather has been favorable when the rape was in bloom, I have extracted at this time, in April or May, from one of the best colonies, some ten or more pounds of honey. That is necessary, as otherwise the queen will not have in such colonies enough cells to deposit her eggs, and the swarms will be very small, or there will be no swarms at all. As the rape will thrive only on good loamy soil, it can not be cultivated everywhere. But as the benefit of rape honey is so great, some bee-keepers of Germany take care to bring their bees near a rapefield. At least, I do it. Thus I wandered with my colonies this spring 8 miles from here to the south; and as the rape bloom was over, I brought my bees 8 miles from Wilsnack to the north, where white clover, locust, and linden abound. At the end of July, or in the beginning of August, I bring my bees to the heath. You see, dear friends, I am a wanderer; but I should not have had any honey yield, as so many bee-keepers of Germany have had who do not wander. I have some colonies here in Wilsnack, but they have no honey to extract, while they live only from hand to mouth. It is curious, that in some sections of Germany there was a great honey-flow, and in some others the bees got nothing. Sometimes we have had some very fine days for the bees to work, but we have had rain, wind, cold weather, and the mountains decked with snow. If the weather should be favorable in the months of August and September, I hope we shall have a good crop from buckwheat and heather. The latter is to-day as brilliant as it can be; but it is a pity that the heather honey can not be extracted.

For comb honey we have no market; at least, it does not pay to sell to such as we have. Extracted honey, by the way, we have a very good demand for. We call it "slung honey" (*schleuder honig*). It sells from 18 to 25 cents, and comb honey from the heather will sell in good years from 12 to 15 cents. You see how favorable it is for the German bee-keepers to sell extracted honey. One year I thought I could sell comb honey in sections. I got 500 nicely filled sections, and my heart was proud when I saw my riches. The year before, I had made a trip to England and saw at Kensington the beautiful comb honey exhibited. No doubt, I thought, it will pay to sell such beautiful "delicatesses." Well, I sent samples of my honey to all the dealers I know, but they would pay only 12 to 15 cents for a pound of the finest locust and linden honey, while I got 25 cents for slung honey.

"Please, Mr. Gravenhorst," said a customer one day, "would you not be so good as to take the honey out of that frame? I like it better without it." What could I do but cut the honey-comb out of the frames? I sold nearly 200 sections; the others, 300, I have extracted, and since this time I have run my apiary for slung honey.

You will, of course, have observed that the bees build their combs, when let alone, so that one angle of their cells is at the top and one at the bottom. I was ever of opinion that this position would give the comb greater solidity than when the cells have a broadside at top and on the bottom. The most of our foundation manufacturers work their foundation in such a way that it can be fastened in the frames with one side of a cell at the top. What do you say to this? C. J. H. GRAVENHORST.

Wilsnack, Germany, July 24, 1888.

Right glad are we, good friend G., to get this excellent report from our cousins away over the water. It seems funny indeed that your people will pay more for extracted honey than for honey in the comb. I suppose it is a good deal a matter of education, for there are some localities even in the United States where somewhat the same state of affairs prevails.—In regard to the way foundation should be placed in the frames, the matter has been a good deal discussed in years back. While some concluded that it did make a difference in the matter of sagging, I believe that others could see no difference at all. Our mills are now made so as to have the cells come in oblong frames, like the Langstroth, in the way in which you see the bees build them naturally; and my impression is that many decided there was less sagging of foundation when suspended in that manner. With wired combs, such as we nearly all use of late, there is no possibility of sagging in either case.—I suppose the rape you refer to, that comes in bloom so early in spring, is sown in the fall; and, if I remember correctly, it differs but little from the plant we call seven-top turnip. This comes in bloom at about the same time fruit-trees do, and some seasons a little in advance of most fruit-bloom.

MORE ABOUT THE GREAT BASSWOOD BELT OF SOUTHERN WISCONSIN.

An Account of Some Large Yields in that Vicinity.

ARKADELPHIA BEES, AND THEIR CONDITION WHEN DUMPED OUT OF THE CITY.

EDITOR GLEANINGS:—Since reading friend Freeborn's article, page 606, concerning the famous "basswood belt" of Southwest Wisconsin, I thought perhaps you would like to hear something further from that section. I suppose I am the one Mr. F. refers to when speaking of the 10,000 lbs. from 80 colonies, and I wish to add here that my bees were destitute of honey when basswood blossomed, and that we had 105 nucleus swarms which had been formed from the 80 old colonies, and they all were left with ample winter stores at the close of the basswood yield, which lasted 21 days. I wish to mention a few yields I had in my experience there of eleven years.

In 1883 I moved one colony to a neighbor's, and formed 12 nuclei from it, and one colony he had. They gave 250 lbs. of surplus, and ten of them wintered. In 1884 they built their own comb, and gave 1350 lbs.; increased to 22, making 20 increase and 1600 lbs. of honey in two years, from two colonies. In 1885 I moved 25 picked colonies from Viroqua into the basswood timber. They gave a surplus of 2250 lbs. in six days. I have had a colony on the scales show a gain of 320 lbs. in 13 days.

This belt of basswood timber lies between the Wisconsin and Kickapoo Rivers, and is from 10 to 40 miles in width, and 70 miles long. The best locations, however, are found along Pine and Kickapoo Rivers and their tributaries in Crawford, Vernon, and Richland Counties. One other reason why this section is a favored spot is that it abounds with sugar maple, which is very valuable in building up.

In speaking of the destruction of the basswood timber, to be sure it is going on at a fearful rate, on the best table and ridge lands; but I can take you or Mr. Freeborn to localities where the lay of the land is such that, in my opinion, 100 years from now will find enough basswood in one location for 1000 colonies. I have spent thirty of the thirty-six years I have lived, in that country; and after seeing 2500 miles of country I have seen nothing to compare with it. One can find the basswood in Arkansas, Tennessee, and West Virginia; but, as Mr. Freeborn says, it does not yield like the basswood in Wisconsin and Michigan. The difference in soil, and the cool nights, I think, are the reason. Am I right? The friable, inky black loam soil among the hills and dells of Wisconsin where the ground is kept moist by the thick luxuriant growth of wild fern, I think is more productive of a sure and constant yield of nectar than the hard, dry, stony, and sun-dried soil of more southern localities.

But much of the country south of the Ohio and east of the Mississippi Rivers has a splendid substitute in the stately tulip; and if the honey were as light in color, it would certainly become a "respectable rival" to basswood honey, for it is the thickest honey I ever saw, and, to my taste, very fair in flavor.

I sold my bees in Wisconsin last September, and went south in hopes to find as good a country for bees, and to improve my health. I went to Saline Co., Arkansas, and began to buy up bees, but soon found that for me to stay there meant a "widow and four little ones." I then sold what bees I had, and, as the season was getting too late to start an apiary for myself anywhere in the South, and as something must be done to make expenses, I began to look for a situation or a chance to work bees on shares. I soon had two offers, so on April 25th I bid my little group good-by and started for Mr. Blacklock's apiary, in Northeast Kentucky, while my wife took the children and went to Arkadelphia, Arkansas, to work Mr. Z. A. Clark's bees. She found 58 colonies, which the kind city council had dumped out of town in about the same style you would expect to see a lot of empty boxes behind a country store. After setting up housekeeping as near the bees as possible, she left the cares of the household with our little nine-year-old daughter, while she and our son, 12 years old, walked half a mile to work in the apiary. She found the bees swarming and going to the woods; but by tiering up and dividing she soon overcame swarming, and in four weeks she had 2350 lbs. of honey, and an increase of 48 young colonies. The rainy season, which Dr. Blanton speaks of, set in, which not only stopped the honey-flow, but made the country very sickly. My wife wrote me that they were all coming under the influence of malaria. I instructed her by telegraph to leave there at once for this place, where they are all enjoying the best of health under the influence of this goodly climate.

Mr. Blacklock had 70 good colonies in Root's chaff hives, and 20 with worthless queens. I produced 4100 lbs. of honey (½ comb), and increased to 136. I got 132 lbs. of finished sections from one chaff hive, and 120 from another. The honey was nearly all from tulip. We are all happy here, in a little town on the L. & N. R. R., 36 miles from Nashville, where I intend to buy up a carload of bees, work them through the black gum and tulip honey-flow, and start for *unter den linden* in Wisconsin by June 1st, next; and if Mrs. Chaddock will have her bees ready and out to the road, and will go along with us, we will warrant that she will get her pitcher full at least. M. A. GILL.

Fountainhead, Tenn., Aug. 20, 1888.

Why, friend G., I had no idea that you had been rambling around at this rate, and I supposed you were a fixture where we used to hear from you. But one is excusable in doing almost any thing when health fails.—We are very much obliged for the additional light you give us in regard to that Arkadelphia matter. I think that city council ought to pay him damages.—May I take the liberty of suggesting a caution in regard to your project of moving bees to catch the honey-flow? The operation is necessarily an expensive one, and I believe that most who have undertaken it have so far lost money. I should be very glad to have you help Mrs. Chaddock get that pitcher filled with honey; but please do not get her "out of the frying-pan into the fire," as the old adage runs

BUG OR BEETLE? PROF. COOK PLAINLY EXPLAINS.

DOES SYMPATHY FOR A FRIEND HELP HIM ANY?

FRIEND ROOT:—You ask for the difference between a beetle and a bug. I assure you, I am glad to give it. I was lecturing a few years ago in a city of this State, when I had occasion to mention the potato-beetle. A good minister in the room rose to ask a question. He said, "Professor, *you* say potato-*beetle: we* say, potato-*bug*. Now, I wish to know which of us are correct." "I am right," said I, and proceeded to explain how that a beetle has strong jaws which move sidewise, as seen in the large pinching (bug) beetle. Thus such insects can nip and eat the foliage from herb and tree. "Bugs, on the other hand," said I, "have a strong beak, which, swordlike, they thrust into the plant or animal, where they can suck the juice or blood."

"Oh, yes!" said the reverend gentleman, "I understand perfectly now. We had those fellows, down in the army."

This is also a matter of practical importance. Beetles eat; and so we may hope to poison them by dusting the foliage which they infest, with poisons. A bug would thrust its beak safely through the poison, suck the juice of the plant, and care not for our remedy. Thus we can poison beetles with Paris green, but not bugs.

FLEA-BEETLES.

Friend Root, you are not wrong. The cabbage flea-beetle is much like the grape flea-beetle, as its common and scientific names both show. The grape-beetle is *Haltica chalybea*, while the cabbage, or radish flea-beetle, is *Haltica striatata*. This last is so named because of the yellowish wavy stripes along its wing-covers. Both beetles can hop like fleas. Nearly all insects that hop for long distances have enlarged femora. These show very plainly in the legs of our common locusts or grasshoppers.

I have very rarely to call President Mason to order; and even now, as I think what a large man he is, I do it with no slight hesitation. Justice, however, demands that I speak. He says that Mr. Cutting and I have worked up the interest in fairs in Michigan. Let me say that Mr. Cutting should have *all* the credit. I aided very little aside from a great big lot of sympathy, which he always had. So much as I like to be classed with my friend Cutting, I must object in this case. A. J. COOK.

Agricultural College, Mich., Aug. 4, 1888.

Friend Cook, I for one am very much obliged for this explanation of the difference between a bug and a beetle. Every thing that eats the foliage is a beetle; and these fellows that run their bills down into the leaf are bugs. Well, now, I always supposed that the flea-beetles were of the latter class. At any rate, we do not succeed in poisoning them with arsenites, as we do the potato-beetles. The flea-beetles eat the foliage, I know, but they dig holes down into it; and they are such hard-shelled little pests that they do not die worth a cent, no matter what you do to them.—In regard to your last paragraph, I think I should side in with brother Mason; for if I were sure of a great big lot of your sympathy in something I was at work at, it would help me a very great deal indeed. And now, dear brethren, we come right on to the ground of the benefit of prayer. When we pray for anybody in real earnest, our sympathy goes with the prayer. These prayers help. When we pray for an *enemy*, the act helps both parties away from earth, and certainly a step or two, heavenward.

THE GIVEN PRESS.

HOW A NEW ZEALANDER OPERATES IT.

DEAR SIR:—I have read with much interest the various articles on the Given press. I imported one of them in 1885, and have thus had three years' experience with it. The directions were to wire the top and bottom of the frame, make the foundation in the partly finished frame, and afterward fit in the ends. I found this process very cumbersome and quite unnecessary. I have all my frames full-sized Langstroth, wired and ready in the winter months, and the sheets are dipped and pressed just before swarming. Diagonal wires are quite unnecessary. To make a very sure job, I lay a sheet on the press; over that the wired frame, another sheet on top, and press them all together. But to fit up a hive of 10 frames, this requires 20 sheets of wax; and as I have never succeeded in dipping sheets to run more than 10 to the pound, this takes two pounds a hive, which is too heavy. I therefore cut a number of sheets into strips about an inch wide, and lay two strips on each frame, which imbeds the wire firmly at top and bottom. By keeping the die well lubricated with pearl ash I have no trouble in lifting off the frames; and I agree with Dr. Mason, that I would not exchange my press for the best roller mill.

I read in GLEANINGS of wax sheets, 14 to the pound. How is it done? Dipping sheets is always a trouble to me. They are thicker at one end than the other; and often, after coming out apparently all right, they crack in an unaccountable manner. A few directions on the subject would, I am sure, be of value to many of your readers who make their own foundation.

AMERICAN BASSWOOD HONEY.

I have to thank you for the samples of basswood honey. It is quite different from any thing we have in this country. My crop is entirely from clover and thistles.

FOUL BROOD.

Foul brood has made sad havoc among our bees. I lost 50 per cent last winter, and had only 70 weak hives to begin the season with. Fortunately it was a very good one, and I had a yield of 9000 lbs., besides doubling my stock of bees. During summer, foul brood does not make headway, but spreads rapidly in late autumn and winter. I expect to lose a great number again before spring.

GEORGE STEVENSON.

Gisborne, New Zealand, June 15, 1888.

Many thanks for your kind report, friend S. It is the more interesting, as it comes from your far-away land. When the matter was first suggested to me, of making foundation right in the wired frames, on the wires, I fell in love with it; and it has always seemed to me that the nicest way in the world to do would be to have the thin sheet of wax on each side of the wires. Your idea of using a couple of strips on one side, instead of two full sheets, is very ingenious, and I should think it might be very valuable with the Given press. Your inquiry in regard to 14 sheets to the pound strikes directly on the one objection to the Given press. With a foundation-mill, the rollers will press the surplus wax out of the way so as to make the sheet of foundation nearly twice as long as the sheet of wax before it was rolled; while with the Given press you can not have less wax in your frames than what you had when it was dipped. I should think very thin wax might be dipped, but it would doubtless be troublesome and expensive, especially if you wanted as many as 14 square feet of surface for a pound of wax.

DOES ODOR OR COLOR ATTRACT BEES?

DO BEES PREFER CERTAIN KINDS OF HONEY?

EDITOR GLEANINGS:—I wish to comment upon the answers to the query in July 11th *Canadian Bee Journal:* "Do bees show a preference for certain kinds of honey? If so, why?"

Let me say, that I prize these queries and answers. If they seem "hashy," it is a very palatable kind of hash. You will notice that I give the answer, that odor and color of the flowers explains the preference. Without doubt I am correct. It is probable that odor is the chief attraction. Several say that it is quantity, and instance the linden. Few flowers secrete so abundantly as our grand lindens, hence the volatile element which gives the fragrance is very abundant, and we readily see why the bees are so eager to get to the bloom when it secretes. Mr. Doolittle's answer is interesting and suggestive. He says the teasel attracts the bees away from the linden, and adds that this is unfortunate, as the teasel furnishes thinner, and so less desirable nectar. This, again, explains why the linden has less odor. The thicker nectar would volatilize less rapidly, hence the bees would be drawn to the thinner and more fragrant teasel nectar. Has any one ever known the linden to be very fragrant and yet not be visited by bees, unless, forsooth, a more fragrant plant took the precedence? Our lindens are just out; but as yet they are void of fragrance, and unvisited by the bees.

Ag'l College, Mich., July 15. A. J. COOK.

THE SOURCES OF FALL HONEY.

THE DEARTH OF HONEY IN ILLINOIS.

AUGUST 15th I had a visit from a bee-keeper who lives about twenty miles north of here, in the Illinois River bottom. I was very much interested in him and his visit, for this reason: His apiary has secured all the surplus honey that I've heard of in the State. He said that he had about 1500 lbs. of white honey in sections, from 50 colonies, spring count. I've no doubt that this apiary is well managed; but good management will not fill sections when there is no honey to be had. He said that there was no honey in his hives when the basswood bloomed, and this yielded well for several days, when the bees worked on a white flower, growing very plentifully in the woods and waste places near his apiary. I had considerable curiosity about this flower, and brought out Prof. Cook's book. Together we looked at the illustrations; and when we came to figwort he exclaimed, "That's it! that's it!" (only our old friend the Simpson honey-plant).

About the middle of July the buckbush bloomed, which we found illustrated by Prof. Cook as button-bush. This grows in water and in marshes, and blooms for one month, and from these three sources his honey came principally.

This man devotes his whole time to his bees—lives with them, and in the woods; and, though not a scientific botanist, he is a very close observer of nature, and I predict that he will be for Illinois what your neighbor Shane is to Ohio—get a crop of honey "whether the season is good or poor."

AQUATIC PLANTS.

We talk a great deal about improving waste places. Why not include marshes? And if this button-bush yields honey from the middle of July until the middle of August, it is certainly invaluable, and should be introduced wherever it is possible. Will some of your readers tell us more about it, and whether it has off years, like basswood?

In GLEANINGS for Aug. 15th, page 647, in footnotes to an Illinois correspondent, you say, "The season is now entirely over for honey." My visitor of Aug. 15th said there was a great crop of golden-rod, boneset, and wild touch-me-not, which was just opening, and Spanish needle, which blooms in September. And there will be acres upon acres of asters. The largest crop of honey ever gathered here was during the fall. The grasshopper year, the bees filled their hives almost solid with honey the last ten days preceding frost. On the same page you also say, "Swarming hardly ever occurs to any extent unless honey is coming in from some source pretty freely." August 17th I put back two large swarms which had neither queen-cells nor unsealed honey. There was a little sealed honey over the brood, but the outside frames were empty. We use an 8-frame L. hive, and nearly all the season every frame is filled with brood; and although plenty of storage room is given, swarming is going on continually. The bees have gathered just enough honey to keep them rearing brood freely, and swarming is the result. I should have lost a very large swarm lately if I had not had the Manum swarm-catcher. They clustered on a maple, growing on a neighbor's sidewalk. The owner was absent, and I would not have dared to have a limb sawed off, provided I could have done so. By standing upon a chair, I was able to jar them into the catcher, and in so doing I was fortunate enough to get the queen, which I returned to her old home, and the rest soon followed. MRS. L. HARRISON.

821 Hurlburt St., Peoria, Ill.

Mrs. H., I do not quite understand your calling the Simpson honey-plant a *white* flower. With us it has a little purple pitcher-shaped blossom.—Button-bush does furnish considerable honey; but the expense of getting even a single acre, I fear, would be more than the honey is worth. Would it not be better to move some hives to the vicinity of a swamp containing naturally large quantities?—That foot-note you refer to came from Ernest. I should have qualified his statement, for I am well aware that the season is not entirely over for honey, even two months later than the middle of July. With us, swarming never happens unless we are getting a yield of honey.

OLD FRIENDS AMONG THE INSECT-TRIBES.

PROF. COOK TELLS US ABOUT THEM.

EDITOR GLEANINGS:—In response to your wish as expressed on page 516, I will give you illustrated articles on all our insect-friends. It is well that we should know our friends, that we may never do them hurt.

Beneficial insects are divided into "predaceous," such as pounce upon their prey and kill and eat, tiger-like; and parasitic, such as lay a fatal egg on or in the victim. These eggs hatch, and the resultant larvæ feed upon the unlucky insects which previously harbored the eggs. In this last case the insect fed upon lives till its foe becomes full grown; thus the victim has ever gnawing away at its tissues its fatal enemy. While this is terrible on the eaten, it is clover to the eater, as it can ever regale itself with fresh, tender—yea, living insect steak. To-day I will speak of two families of our most important predaceous insects, simply remarking, as I pass, that, were it not for these innumerable insect friends, we should soon all perish from off the face of the earth; for we should have no tree or plant to furnish us subsistence. Our insect-enemies which are now devoured by our insect-friends would make our earth a veritable desert.

On page 515 I described the ground-beetles (Fig. 1). These very numerous, mostly black, long-legged beetles, all belong to one great family—*Carabidæ*. They vary in size from that of a louse to the one described on page 515 (1¼ in. long). There is probably no family of predaceous insects that do the good that they do. The figure shows the form so well that it would be hard to mistake them.

The little oval lady-bird beetles, dressed in yellow or orange, frequently with black beads (Fig. 2), are also very valuable friends. They belong to one family — *Coccinellidæ*, and, like the *Carabidæ*, or ground-beetles, are nearly all of great value to us. There is an interesting feature about these. While nearly all insects are held in dread, a very foolish and causeless dread, these lady-birds are a marked exception. We all played with these, and fondled them with admiration when we were children. No wonder, for they were handsome; and any natural or inherited aversion was conquered by our desire to become intimately acquainted with these handsome creatures.

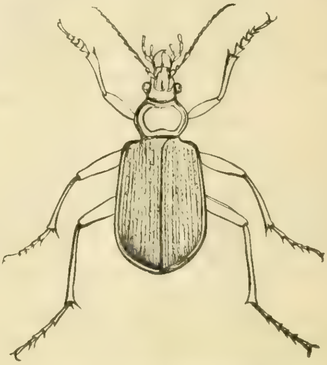


FIG. 1. GROUND-BEETLE.

The larvæ of these beetles live, like the mature insects, upon trees and plants, where they feed upon plant-lice, etc. If trees were only sentient beings, how warmly they would welcome these little life-preservers! As it is, the vigorous green which the plants put on after these lady-birds (larvæ and beetles) have cleared them of their foes, seems to speak a welcome. The larvæ are long slim insects, usually black, with yellow markings. They are somewhat like the larvæ of the potato-beetle, only slimmer. Sometimes scores of them will be seen on a single cherry-tree, all busily employed in ridding the tree of its worst enemies—the little rounded black cherry-aphis, *Aphis cerasi*. Their small ball-like pupæ (Fig. 2) appear upon the twigs, sometimes so abundantly as to look like a cluster of currants. Let us then admire these lady-beetles more than ever—first, for their intrinsic beauty, and, secondly, for the good they do.

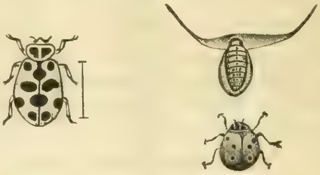


FIG. 2. LADY-BIRD BEETLES.

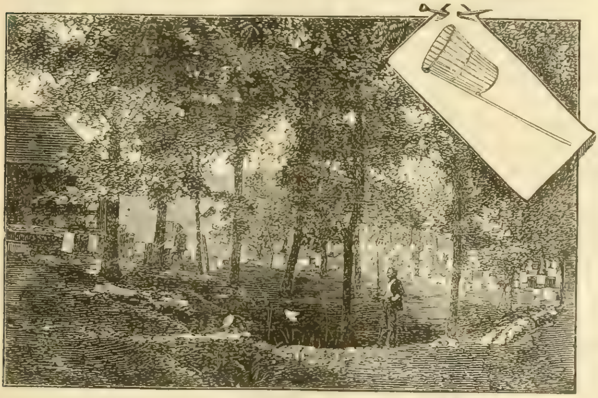
Agricultural College, Mich. A. J. COOK.

Look here, old friend, you do not tell us as much as we want to know. What does that straight line beside the lady-bird represent? We often see them beside insects. Does it indicate the size of the insect in real life? If so, how? Are the other figures at the right the larvæ of the lady-bird? Now, I have seen these things you mention, on cherry-trees, looking like currants; but I should have supposed they were the agents of mischief, and perhaps have sprayed them with Paris green. So much for being acquainted with even the insects.

LIVELY SWARMING.

OUR FRIEND D. F. SAVAGE RECOUNTS HIS EXPERIENCE IN QUEEN-REARING, AND SECURING SWARMS FROM LOFTY HEIGHTS AMONG THE TREES.

THE season opened well with about ninety colonies, mostly very strong. The early harvest from fruit and forest bloom was abundant, and on the heels of that came two or three weeks of honey-dew, and there was roaring and booming night and day. However, the queens got ahead and filled up with prodigious amount of brood; and as the clover wholly failed, being destroyed by last summer's excessive dryness and last winter's freezing, the breeding was extended, even into upper stories. The consequence was, a swarming mania such as I never saw before. I generally allow only ten or a dozen natural swarms; but this season I have had fifty, of all sorts and sizes, from 8 in the morning to 6 at night, in the hot sun and when rain was pouring, some pitching on to the ground, some pitching fifty feet high. I have used a great variety of apparatus and method in securing them, suited to the occasion, and have suffered only two or three to escape. Once I climbed a black-jack about 40 feet, scooped the cluster with my hiving-basket, and brought it down safely, holding it by my teeth. Once there were two swarms on a walnut-tree and another on an oak near by, 30, 40, and 50 feet up. I discovered them by looking up after an absconding colony that rushed out pellmell when I went to give them a frame of brood. They were on fdn. three days after hiving. I had taken out one frame to make room for the frame of brood; and after covering with the cloth I shook off the bees from this frame; just then some of those which were clustered nearly overhead began to move, and away went No. 128, not one remaining. Then I saw the three swarms on high all uneasy, and, to make matters more lively, out comes No. 37 and pitches in decent fashion in the favorite small cedar. The restless ones in the high trees, some of which had probably been hanging all night, now swung from their moorings. One swarm sailed away to parts unknown; the others came to the cedar-tree, where I was already cutting off twigs and bringing down bunch after bunch; and as they were a long time in settling I was able to secure them in detachments into two hives.



THE GLEN APIARY.

Another swarm was afterward secured from the same high tree where they had hung all night, by means of two swarms that came out early in the morning and settled near, but not so high. A young man was present who climbed the very high tree with my hiving-basket. Then when I got those two running into their respective hives Bob scoops off those on high, swings the basket down to me, shakes and brushes off until they get so scattered and bewildered they are glad to join those rushing into the two hives.

Another was secured from the same ambitious elevation in a little different way. As no convenient swarm was issuing, I took a hive that had been occupied only two days, placed it under the tree, then took two or three frames out, shook off the bees, then gave the word to Bob to dislodge the swarm from the tree, and speedily they came to reinforce the hive below. I have had only one swarm leave the hive immediately after entering; and as they went only a rod and clustered low, the hive was moved, and the bees shaken down, when they promptly went in and decided to stay.

I now remember another case where two swarms issuing at the same time, and clustering together, were hived and promptly went in; but in half an hour the hybrids rushed out and mostly went home, while the Italians remained. Many of the dark bees, however, did not seem to know the way home, and lingered about on a post for some hours, but finally found refuge somewhere.

Some of these lofty swarms were ed by young queens from nuclei. The nuclei were too strong; and the queens, when issuing from the inserted cells, found other cells started and strongly guarded, and so out they went.

I have raised some very fine queens, after Alley's plan. The first batch did not turn out very well, and only eight or ten good cells were secured from two queeneries; but the next time I put in more prepared cells on two frames, and one colony started *fifty* cells. I punched out one-third of these, and gave one frame to another colony that had been queenless three days, and got 16 good cells from one and 18 from the other. Having to provide nuclei for so many cells, and so many swarms coming out, and several parties coming to buy hives, brought me at one time almost to the point of using a nail-keg and starch-box for hiving; but now I am uniting second swarms and removing old queens, and rapidly reducing the number from 150 to 120. And since beginning this, No. 8 has swarmed into that same high walnut; but after long search I found the three-year-old queen in the grass, carried her in my hand till I could find the Klimitz cage, and my basket on the pole. Bees were hurrying home when I got there; by holding the basket just above the entrance, most of them found the queen and clustered within and without. I hived them near by, then took those frames of brood, with bees adhering, from the parent hive, and put with them. I was not prepared, and had to do this job in a hurry.

I send you a photograph of Glen Apiary. You will see some of the hives, but not all, and some of the high trees to which I have referred in a previous part of this letter. D. F. SAVAGE.

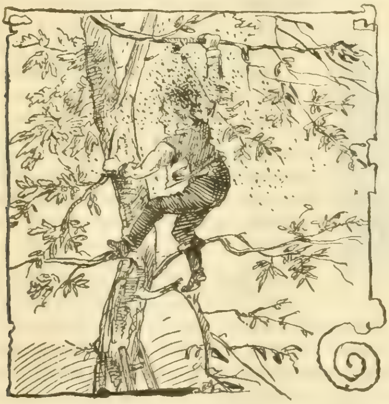
Hopkinsville, Ky., July 5, 1888.

WHAT TO DO WHEN BEES SETTLE ON ONE'S HEAD.

WITH A SUITABLE ILLUSTRATION ACCOMPANYING.

THE clipping in June 15th GLEANINGS, about bees settling on a farmer's head, induces me to give you some reminiscence from my experience in such a case.

About 38 or 40 years ago, when I was 8 or 10 years old (I have been used to bees from childhood), I was holding up a leafy bush for the swarm to cluster on, while tin pans, bells, and two sea-shell horns were making the sweet music of bygone days, to induce the bees to cluster. After circling around about the usual time, a prime swarm began to alight on the stem of my bush, cn a level with my head; and as the cluster-call sounded, the bees poured in all over my shoulders; then my hat brim dropped down over my face. I dropped my bush, took off my hat, and laid it on the bush and moved out pretty quickly, with a pint or so of bees on my arms and shoulders. I do not think I got a sting, but the swarm clustered on my old hat, "all samee Melican man." Moral: Never strike a bee.



FRIEND ARWINE'S PREDICAMENT, 20 FEET UP FROM THE GROUND.

Once upon a time, about 1877 or '78, I had a swarm cluster about 20 feet up on a tree near my apiary; and as I could not get at them with a ladder on account of the small limbs, I climbed the tree to get them. I could get nothing to stand on in reach of the cluster but two small limbs about a large as a man's thumb, and held on by a limb about 1½ inches in diameter, and about four feet from the body of the tree. The limbs I stood on being on a small fork that terminated in small branches outside of and around the cluster, I had cut the small limbs from around the bees and was about tying a line to the limb to climb, when the two branches I was standing on broke. The limb I was holding to, by the jerk of my weight coming all on it, bent quickly, striking the cluster, and that precipitated a large part of it on to my bare head, my hat having been knocked off while climbing. Think of the joy of my situation—hanging by one hand some 18 or 20 feet high, with perhaps a hundred lances busily testing the hardness of my head and the sticking qualities of my grit, but I did not fall. I had had a broken thigh once, and I would prefer a thousand bee-stings to one broken leg. I quietly pulled myself on to the body of the tree, climbed down, combed the stings out of my scalp, while my wife picked a dozen or two out of my forehead, face, and neck, after which I climbed up again, knocked the cluster into a basket, let them down by a rope, carried them to the hive, and emptied them out. Thus I learned that we could carry bees in an open-topped vessel as well as any way, and with no risk of jarring the cluster off. E. S. ARWINE.

Banning, Cal., July 16, 1888.

Why, friend A., you are a "trooper." It is funny that nobody ever thought of it before. When a swarm of bees alights on your head, let them have the hat to cluster on, in place of clustering on the owner underneath. Trying to fight bees that want to cluster on your head would be pretty sad business, and I indorse your moral. Your grit in getting those bees down, even if they did give you so many stings you had to get them out of your hair with a comb, is commendable. I have tried carrying bees in a basket; and while they will sometimes cling to the sides, and around on the outside, at other times I have known them to leave the basket in disgust, and go back to where they had been clustering. A deep tin pail does pretty well if you keep bumping it every little while, so as to make them slip down to the bottom in a heap.

WILD SUNFLOWERS AS A HONEY-PLANT.

HONEY-PLANTS NOT YIELDING THE SAME IN ALL LOCALITIES.

MR. JOHN A. KING, Mankato, Minn., sends me the flower-head of one of the wild sunflowers, which he says grow from three to five feet high, and bloom from early August till frost. He says the bees gather freely from it. The honey is amber in color, and much superior to that from late fall flowers. He wishes me to give the name through GLEANINGS, and comment upon it.

It is very difficult to correctly name plants of the great composite family from a single flower-head, so I can not be entirely sure of this one. I think, however, it is our large sunflower, probably *Helianthus giganteus*. I have noticed here that bees visit both our most common wild sunflowers, *H. giganteus* and *H. divaricatus*, yet I have not thought them as valuable for honey as some of the smaller composite plants, like the tickseed species of coreopsis—or beggar-ticks—species of bidens, nor at all comparable with these gems of our autumn bloom, the goldenrods, asters, and thoroughworts, for I find that the latter swarm with bees, while the sunflowers are rarely visited. But we have much to learn in reference to this matter of nectar. Flowers that secrete sparely here may fairly gush with nectar drops in the dryer atmosphere of Minnesota. Hence, while the sunflowers may be indifferent honey-plants in Michigan, they may be among the best in Minnesota. Thus it is that all accurate observations and all correct derterminations of honey-plants are important.

In sending plants for name, not only the flowers but the stems and leaves should be sent. In such large families as the *Compositæ*, we must see the leaves and know their arrangement on the stalk.

A. J. COOK.

Agricultural College, Mich., Aug. 10, 1888.

Friend Cook, these wild sunflowers, in swampy places in our own locality, sometimes furnish a considerable amount of honey. Tame sunflowers, however, afford little if any. You may remember that we have tried half an acre on our honey-farm, and hardly a bee was found on them. There have been other seasons since then when the bees were quite thick on the sunflower heads. Our stenographer says that his sunflowers are now visited by bees, and that they certainly suck up the juice that exudes so plentifully. I presume this is to be accounted for by the scarcity of nectar in the other flowers at large. In other words, the bees prefer to work on sunflowers rather than do nothing at all. You speak of beggar-ticks, a species of *bidens*. I presume this is the same as what we call Spanish needles, and these, in swampy places, look not unlike miniature sunflowers. In some localities they furnish large quantities of very thick amber honey, something like that from the sunflower family.

PREPARING FOR WINTER.

FRIEND DOOLITTLE GIVES US A TIMELY HINT.

YEARS ago, when I first began to keep bees, I thought there was little which needed doing with the bees during the months of September and October, thinking that the month of November was early enough to prepare bees for winter, and many a time have I equalized the stores in the hive "by frost," as I used to term it, thinking that I could get along with the matter easier and quicker while the bees were thickly packed away in their winter quarters, than I could possibly do when warm weather compelled me to use smoke to drive the bees out of the way, and keep their temper down so I could handle them. Well, if this were all there was to it I should still prefer to equalize the stores after cold nights had compelled the bees to contract off the heavy combs of honey; but after losing heavily several times when preparations were thus delayed, for the reason that the disturbing of bees late in the fall seems to be very injurious, I concluded to take the advice of an old bee-keeper, who told me that the month of September was the proper time to fix the bees for winter. After working on this plan for a number of years, I find that he was quite right about it; and in order that the readers of GLEANINGS may be reminded that winter is soon to be upon us, and that they should not delay getting the bees ready for it longer than till the last of this month, I will tell them a little of how I work along this line.

The point which seems to have the greatest bearing on successful wintering is the getting of the winter stores near and around the cluster of bees in time for them to settle down into that quiescent state so conducive to good wintering, prior to November first. To arrange these stores and properly seal them requires warm weather; hence, it is clear, I think, to all, why we should not put off caring for them till cold weather arrives. To be sure that all have the desired amount of honey, there is only one certain way to do, and that is to open the hives and take each frame and weigh it, after having shaken the bees off from it. Next weigh a frame of empty comb, or several of them, so as to get the average weight, which, when deducted from the weight of those in the hive, will give the weight of the honey. If it is found that there is 25 pounds of honey, I call that colony all right for winter. If less, it must be fed to make up the deficiency; if more, it can spare some to help another colony which is short. In this way I go over the whole yard, equalizing and feeding if it is required, till all have the required 25 pounds.

Where feeding is required I manage differently from what I used to, in that I now feed from three to five pounds a day, while formerly I used to feed all the colony required, at one feeding. To be sure, there is less work where the whole is fed at once; but to offset this we have the stores scattered all through the hive, which, in my opinion, is a very undesirable shape to have them in. By feeding more slowly we get the stores close up to the cluster all around, and thoroughly sealed also, which has great advantage. For feeding slowly as above, I know of no feeder as good as the division-board feeder, which I have described in back numbers of GLEANINGS, nor any feed as good as that made by taking 30 pounds of granulated sugar and pouring it into 15 pounds of boiling water, after which 5 pounds of honey is to be stirred in, as I have before given on these pages. Where it is necessary to feed (as it seems from present reports it will be in many parts of the country the present season), I always select the number of combs that I think the colony will require, taking those which have the most honey in them, and, by means of this same division-board feeder, shut the bees on that many combs, which (combs) of course get all the feed, thus securing it in just the shape needed. But, I hear some one say, it is a fearful job to shake the bees off from every comb and weigh it. Well, so it would be if done with each colony; but you will have to do this with only one or two, till you get the right conception of just how much honey there is in each frame by simply looking at it, when you can count off the number of pounds almost to a certainty. However, you will have to weigh a few if you have never practiced this plan, to give you the necessary training required. I can count off combs of honey so as to rarely vary one pound on the whole hive, and yet do it as rapidly as I can handle the combs; and when the apiary is thus gone over there is a certainty about it which gives the apiarist a great advantage over any other mode of procedure. In guessing at the amount of stores, or even weighing the hives, one is quite apt to be mistaken, as I used to find out to my sorrow, by having some of my colonies starve; and that I was not different from others, the reports of colonies starving which are given nearly every spring, go to show. As I go over the hives in this way I carefully note the quantity of bees, age of queen, amount of pollen in the combs, etc., which is jotted down on a piece of honey-section, this piece being left on top of the hive, so that the next spring I can tell just what was in each hive the fall before, so that, in case of loss, I can form some idea of what occasioned it. This little piece of section also helps me in deciding what queens to supersede during the next season, for on it I keep quite a record of when the colony swarmed, how much honey it made, etc. After having the bees prepared as above as to honey for winter, they are to be snugly tucked up in their chaff and sawdust cushions at any time before the first of November, when most convenient, where they are left undisturbed till spring, unless a chance to fly is given by the appearance of a warm day in mid-winter, or my curiosity so overcomes me that I must peep in and see them. In this way my loss in winter is much less than it formerly was.

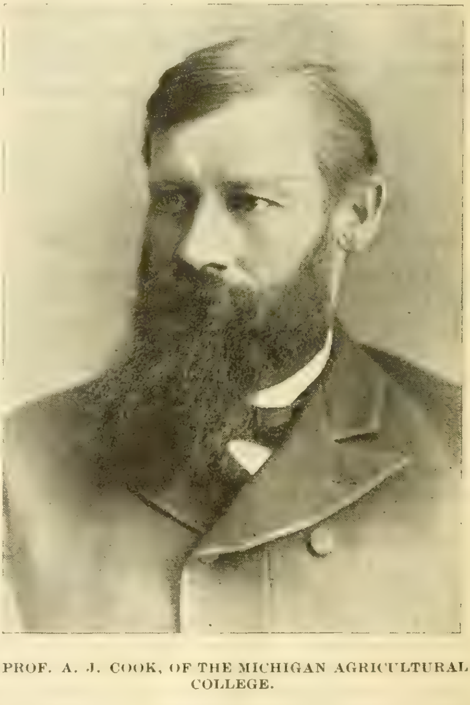
Borodino, N. Y. G. M. DOOLITTLE.

Friend D., our method of determining the amount of stores needed for winter is exactly like the one you give, although I do not know that we have ever mentioned it before. I have known some enthusiastic A B C scholars, however, who made pretty bad work at *guessing* that their colonies had sufficient. I am inclined to think that they omitted to use the scales first, until they knew pretty well by the looks and by the handling how much a frame of honey would weigh; and this is one reason why I like metal corners—we can go through the hives very rapidly, and guess at the number of pounds in a frame, without lifting each comb more than a quarter of an inch from its metal bearings. That is, there is no prying loose of the end-bars. But in regard to the amount of honey or sugar syrup required, we have never yet had the colony, that I know of, that needed 25 pounds, and rarely one that needed 20 pounds. Perhaps our warmer climate in Ohio has something to do with it; but I should say that 20 pounds is ample (that is, 20 pounds of stores sealed up) for a very heavy colony; and for a great many of the colonies we winter safely outdoors in our chaff hives, we allow only about 15 pounds of sealed stores. Please bear in mind, that 15 pounds of sealed stores will ordinarily go further than 20 pounds of feed just put in the combs.—Your plan of making syrup for winter suits us exactly; but as we have had excellent success without putting any honey in at all, nor any thing else to prevent granulation, I can not believe it is necessary after all. If we use sugar syrup and nothing else, we are absolutely sure there are no germs of foul brood in it. Where we use honey, unless we know just where it comes from, we may be in danger of getting into a fearful trouble.—I like your record that is to remain right in the hive, much better than any system of book-keeping; but I think I would use a little slate instead of a piece of section. The writing may be plainer, however, on the piece of section, and it saves the trouble of rubbing out marks on the slate. A nice piece of wood, white and smooth, has a tidy, pleasant look; and when it is not wanted any more, you can burn it up and get a new fresh-looking one in its place. Friend D., we are just a little bit anxious, a good many of us, to know whether you have got a crop of honey this year or not, as you have always managed to have, no matter what may have been the fate of the rest of us.

PROF. A. J. COOK.

A BRIEF SKETCH BY DR. C. C. MILLER.

BEFORE you read this, read the picture. If it is at all like the print here before me, no one who has seen the man need be told that it is Prof. Cook; and those who have never seen him will be able to recognize him anywhere after seeing the picture. Wives are apt to be critical about such things, and Mrs. Cook pronounces this picture good. After all, it has not the usual expression seen on Prof. Cook's face. I suppose a photographer couldn't get that. This picture looks as he does when carefully explaining some fact; for at such times, if deeply interested, he has an earnest, and at times almost stern look. The usual expression, however, even when talking on scientific subjects, is of a more joyous order, as of one overflowing with good will toward all men, and bubbling over with good nature. The old saying is, "Laugh and grow fat;" and in spite of being overworked, Prof. Cook has the appearance of being very well fed. He is of medium height, with dark hair and beard, and erect figure.



PROF. A. J. COOK, OF THE MICHIGAN AGRICULTURAL COLLEGE.

The well-known initials, A. J. C., stand for Albert J. Cook. He is a native of the State in which he resides, having been born at Owosso, Mich., Aug. 30, 1842. That makes him 46, but he hardly looks it. His parents were Christians to the core; and the daily reading of the Scripture to which young Albert listened, with comments by his father, was reinforced by a daily example which tallied well with the teachings he heard. He was by no means rugged in health as a child, and his poor health caused him one of the sharpest disappointments of his life, when he was obliged to lay his studies aside for a year during his college course.

Entering Michigan Agricultural College at 15, he graduated at 20, and, on account of his health, went at once to California, where for three years he was a very successful teacher. Returning, he spent a portion of two years at Harvard University and Harvard Medical College, with Agassiz, Hazen, and Dr. O. W. Holmes as teachers. In 1866 he was appointed instructor in Michigan Agricultural College, and Professor of Entomology and Zoology in 1868. He teaches the juniors and seniors, his classes ranging from 30 to 40. Each student who graduates not only studies all about the structure of the bee as an entomologist, but is drilled as a practical bee-keeper, going through the various operations of the season, finding queens, putting together sections, putting in foundation, putting them on and taking them off the hives, extracting, etc. I do not know of any other institution in the world where classes of students are taught in this way.

The personal influence of such a man as Prof. Cook is no mean factor in the education of a young man; and a special feature in Prof. Cook's work is his Bible-class of students in the Sabbath-school. To this work, which has been carried on for a number of years, he has given much time and labor, and the good resulting therefrom no one can correctly compute. It is much to be regretted that the professor's health is such that lately his physician has peremptorily commanded him to lay aside, at least temporarily, this important work. In this connection I want to say that I wish every young man in the land could have the teaching of Prof. Cook's example in one respect. He is singularly pure and chaste in speech, and I do not believe he ever indulges in any word in any circle, of which he would be ashamed in the presence of the most refined ladies.

Prof. Cook was one of the originators of the Michigan State Bee-keepers' Association, as also of the Michigan Horticultural Society. He was on the board of the latter society for some years, and was secretary of the former for several years during its earlier history, and afterward president for some years. His personal influence has doubtless had much to do with placing Michigan in the foreground in apicultural matters.

To the readers of bee-journals it is not necessary to speak of Prof. Cook's character as a writer. Few have written so much or so well. Besides his contributions to the bee-journals, he writes for the *New York Tribune, Philadelphia Press, Rural New-Yorker, Country Gentleman, New England Homestead, Science, American Naturalist*, etc. His "Manual of the Apiary" has reached a sale of 14,000 copies; "Injurious Insects of Michigan," 3000; and 5000 copies have been published of his latest work, "Maple Sugar and the Sugar-bush."

His labors in the warfare waged against insect-foes have been important. Remedies first advised by him are now common. If I am not mistaken, we are indebted to him for the very important knowledge of Paris green as a safe and efficacious remedy for the codlin moth.

As a lecturer he holds the closest attention of his audience. As a controversialist he is fair, and never forgets to be the Christian gentleman. In conversation he is a charming talker. He takes great pride in his home, and is easily forgiven for thinking that no other man has quite so nice a wife, son, and daughter, as he.

Drafts are constantly being made on Prof. Cook's stock of entomological knowledge in the way of giving information about enemies or suspected enemies of bees, and no mere entomologist could be of the same use to the bee-keeping fraternity as one who is also himself an enthusiastic bee-keeper.

Known the world over as an entomologist and authority on matters scientific and practical in bee culture, those who know him intimately will always like best to think of him as the warm-hearted, unselfish friend whose charity for all reaches almost to a fault, and whose whole life seems to be a life of Christian love. C. C. MILLER.

Marengo, Ill.

Friend M., with your permission I want to add a little in regard to our mutual friend Prof. Cook. My first acquaintance with him was at the first national bee-keepers' convention ever held. It was at Cleveland, in 1871. My attention was first attracted by these very qualities which you mention—an intense love of God's works as exhibited through natural science, and with it a great broad comprehensive love for our fellow-men. I have thought, as you say, that his great charity at times seems almost a fault; but as the years pass by, we begin to conclude that friend Cook has "chosen that better part which shall not be taken away." I do not know where his stock of patience ends; but I have oftentimes felt grateful to him as I looked back, to think how much patience he has had with your humble servant, not only once or twice, but a good many times. Now, if it had not been for that national bee-keepers' convention, which some people think does not amount to much. I might never have become acquainted with Prof. Cook; and I tell you, my friends, it would have been a great and lasting misfortune. Yes, it would have been a great misfortune to all of you. Some years afterward I happened to pay him a visit. I do not remember how it happened, but I do remember many things that happened during that visit. It was about fair-time, and he asked me whether I would prefer a trip in the country to visit some bee-keepers, or an attendance at a county fair near by. We finally decided on the trip in the country. We passed under a black-walnut-tree. Bugs and worms were at work on the foliage, and my friend ran about under the tree, picking up horrid-looking green worms, fondling them, and calling them by name as you might your bantam chickens. His love for all God's creatures, and his desire to form a more intimate acquaintance with them, impressed itself on my mind. Of course, we talked about bees and bee-keepers. Now, I have always had the reputation of being a good deal on the side of those who "think no evil;" but pretty soon my good friend good-naturedly took me to task for even repeating something I had heard, and then he told me of a resolution he had made years before, not even to repeat things he would not say in the presence of his wife, mother, or sisters. I have never forgotten it. Hundreds of times has the recollection of our pleasant talk on this matter of making speeches, and which I thank God to-day I never did make, come up.

Later on, friend Cook gave me a very warm and pressing invitation to attend some of the conventions in the State of Michigan. There used to be some folks in Michigan who did not like me very well, as some of you may remember. When I mentioned it to friend Cook he said that was the very reason why he wanted me to go. By the way, I have been many times puzzled to know why this good friend of ours should take so much pains with one so undeserving as I. Did any of the rest of you ever have cause to feel this same thing? Well, I attended these conventions, and I have told you about them. I got acquainted with the friends I did not like, and, with a little help from our mutual friend, all differences and disagreements vanished away.

Prof. Cook has a wonderful faculty for making any kind of public meeting a success. I have often wondered how it is possible that he could have such an inexhaustible fund of energy, good humor, and unfailing interest as to make even the most commonplace surroundings bright and joyous. At our farmers' institute here in Medina he won the lasting friendship of our boys and girls, men and women, and even old farmers who did not believe in "book farming;" and his accounts of his battles and victories with the farmers' insect-enemies held his audience as if he were reading to them a wonderful piece of fiction. There are people around in Medina County, and I am afraid almost everywhere else, who get into the habit of saying that farming does not pay. They tell about the unseasonable frosts, and of the drought, the weevil, the potato-bug, and the low prices. The same people say that the poor man has no chance at all; and some of them say that an *honest* man has no chance to cope with unscrupulous men who get into office. Prof. Cook meets all these statements, and by his cheery good nature disarms those who utter them. After hearing him talk, you go home concluding that the world is not so bad after all, and with a firmer faith in your heart than you have had before, that there is indeed a God above, who, in loving kindness, has planned this beautiful world of ours with special regard to our happiness, comfort, and enjoyment.

BEE-VEILS, CONTRACTING, ETC.

ALSO SOMETHING ABOUT PLACING SURPLUS-BOXES OVER THE BROOD AND NOT OVER THE BROOD.

After reading brother Doolittle's article on page 597, I desire to say that I second all he says regarding bee-veils, and have for six or eight years used just such a veil in just such a manner as he describes. Back of that date, as long as twenty years ago, when I first began the business, I used just such a veil, only it was gathered at one end with a rubber cord and drawn over the crown of the hat, with one end of the veil sewed thereto, just as described by him. The hat was always light-colored and light weight, but not so broad-brimmed as our latter-day hat.

CONTRACTION.

Reading what brother Doolittle says about contraction, I shall have to partly agree and partly disagree with him. We, too, do not contract our brood-chambers until the time comes when, to produce larger quantities of young bees, will result in a greater expense than income, just as explained in his article, and also in an article of my own, published in the *American Bee Journal* for 1885, page 437, and reproduced on pages 82 and 83 of my book. I shall have to disagree with our brother in his statement that he has practiced this contraction as long, if not longer, than any other person in our pursuit. It will be remembered that Mr. D. and myself held a public controversy with regard to who had first published to the world the system and its advantages, and that, as a result, I antedated him several months. Right here I will repeat what I said in that controversy; viz., that the system was not first practiced by me; that I used it privately three or four years before I published it, because I was not prior in its use; and the friend who did use it several years before I did, did not, nor did he care to publish it to the world. Certainly it is not as advantageous a practice in the production of extracted as comb honey, yet it is in either case advantageous to prevent the production of bees that will cost more than they come to. My experience in this location has taught me to disagree with brother D., that honey is as good to winter bees on as properly prepared sugar syrup; further, that young bees are not as good for wintering as older ones. Again, it may be that brother D.'s Italian bees will crowd even his contracted brood-chamber with honey, but mine never do. So, if I wish to practice late contraction for the purpose of ridding the brood-chamber of natural stores, and feeding sugar syrup, I can do so. The great objections I found to the contraction system with the Langstroth hives were the loose parts—the dummies and the removed combs. Of course, it took some little time and sometimes exposures to robbers in making the changes, but this was not the worst—bees will not work quite as well in the outside as in the inside rows of sections of the surplus case. Now, when these outside rows rest over dummies, rather than combs of honey, or, better still, combs of brood, they will be neglected worse than ever. To prevent these difficulties occurring with this most valuable system of contraction, was partly what led me to the invention of the horizontally divisible brood-chamber. With three apiaries, each containing a large number of colonies, what we do we must do quickly.

QUERY NUMBER 68

Bears upon the subject in question. It seems to me that some of those who answered, especially Prof. Cook and Dr. Miller, must have somewhat misunderstood the query. You will remember how long it took me to convert yourself and a great many others to the value of the honey-board, and how, almost alone, I pleaded for its use. You know, now, that I was right. Now, again, I wish to go on record as saying that no bee-keeper who has had experience in that direction would think of raising extracted honey without a honey-board between the surplus and brood apartments. It is best to have it queen-excluding if you are watching for swarms, and don't have combs in excess of your colonies. It is pleasanter to have no brood in the extracting apartment. Especially with suspended frames is the annoyance from brace-combs terrible where no honey-board is used. If you remove your surplus honey from the supers by combs, think how they topple around, refusing to rest on their rabbets, when you replace them empty, and the bottom-bars strike on the top-bars below. If you remove and replace your surplus by cases, these suspended frames are making you the same fearful trouble. We find necessary trouble enough with suspended frames besides the unnecessary one in question. Place the break-joint sink honey-board over the brood-chamber, and all of this is at an end. Such a honey-board should last a lifetime when properly made, and in no way does it tend to decrease the amount of surplus store. I believe the brothers I have mentioned either did not understand the question or have not had experience in that direction. Now, friends, if you wish history to repeat itself, why simply oppose what I have said above, and afterward, quietly and without giving much credit, fall into line with it, adopt it, and some of you claim it for your own? I wish I were as sure of a good honey crop next year, or a third of a crop this year, as I am that the future intelligent honey-producer will laugh at a man who raised comb or extracted honey without a honey-board.

Dowagiac, Mich., Aug. 4, 1888. **JAMES HEDDON.**

Friend H., you touch on something that perhaps is not clear, or at least has not been clearly brought out, to a good many of us. It is this: Suppose we wish, for certain reasons, to contract or diminish the size of the brood-chamber just before the honey-flow commences. If we take out the combs and move up the division-board, or put in a dummy, we, as a general thing, in so doing throw some of the sections above, over the *dummy* or over the *division-board.* Will the bees go into these sections and fill them with honey as readily as sections that are right over the brood-combs; or, if you choose, sections that are placed immediately over combs containing honey and pollen in the brood-chamber? In the latter case, the bees could pass over the combs containing honey and pollen, and up above them into sections. The dummy or division-board, however, does not, a rule, allow the bees to cluster on them and go over on both sides. Now, I greatly prefer to have all the sections above combs of honey, or, better still, combs of brood. Then how can we contract unless we contract our case of sections also? Why, simply enough: Contract by moving the *bottom* of the hive *upward*, instead of moving either side of the hive in toward the center, and this is exactly what you have done with your shallow brood-combs. You move the bottom of the hive up, however, half way to the top at every jump. Friend Langstroth, when he gave us the shallow L. frames, moved the bottom of the hive up a good deal more than his predecessors did. Many people ridiculed him for so doing; and there are some of the brethren who write for GLEANINGS who say even yet that they won't have any of those shallow things in their yards. The "shallow things," however, have made their way, and may be something as shallow as the new Heddon hive is going to obtain favor. I hope it will, for I like the idea of doing all our contracting by hoisting up the bottom-board and letting the sides of the hives stay where they are; at least I would not move them any closer to each other after having got as close as eight frames. In regard to the honey-board, while I am not yet convinced that we can get as much honey with it as without it, I am afraid we shall have to keep it, especially if we do not succeed in discovering any other way to prevent the bees from hitching the frames in the upper story, to the top of the frames in the lower story; and I believe that most of us are agreed in giving you, friend Heddon, *a great deal of credit* for stirring us up on the honey-board matter, and for showing us what it is good for, as well as on this matter of moving up the bottom of the hive when we want to contract.

GALLS, OR EXCRESCENCES.

PROF. COOK TELLS US ABOUT THEM ON BASSWOOD AND OTHER LEAVES.

MR. E. D. HOWELL, of New Hampton, Orange Co., N. Y., sends me a basswood leaf thickly covered with wart-like galls. He asks me to describe to the readers of GLEANINGS these excrescences, and explain their cause. As this is a matter of general interest, I am pleased to accede to his request; the more so, as our maples, both hard and soft, are similarly affected.

These galls, which are brown in basswood, and wart-shaped, are a beautiful crimson in maple, and are teat-like, or cylindrical, or, better, sub-conical, in form. These galls are simply excessive growths of the leaf, thus forming a tumor on the upper side, which may also reach beyond the lower surface. This gall is hollow inside, and harbors and sustains numerous long four-footed mites. A minute opening on the under surface of the leaf enables the adult mites to forsake the old home and become squatters—homesteaders we may say—on some other portion of the leaf. Thus a leaf or tree which shows only dozens of these galls in May will show thousands in August. The mites are long worm-like animals, white in color, with sharp mouth-organs, and four feet near the mouth. They are very minute, requiring a microscope for their study. Indeed, we can hardly see them at all without a good lens. The oviduct ends under the body, and they lay very large eggs in proportion to the size of the body. Often the mites are so transparent that the great eggs can be seen in their bodies.

I do not think these mites do very serious harm. A silver-leaf maple near our old bee-house is crimson each summer with these phytoptous mites, yet it is healthy and vigorous, and makes a good growth each season.

Though these mites are so different in form, and have only four legs, they are plainly related to the other mites, which are rounded in form and have eight legs—such as the wood-tick, cattle-tick, sugar and cheese mites, chicken and bee mites, red spider, itch-mite, etc. Occasionally some sharp-eyed housewife sends me flour or sugar alive with mites. Such lively provisions please not the average cook. She likes to have her flour rise, but does not like to see it walk off.

Other animals form galls. Thus cynips, or hymenopterous four-winged gall-flies make galls on the oak, some of which furnish nectar. Cecidomian, or two-winged gall-flies, form galls on the willows and other plants, while plant-lice form galls on species of poplar, on the elm, and other plants and trees. Often the lice secrete delicious nectar, which oozes from the galls, as in the case of the elm, or cockscomb galls.

This whole matter of galls is very interesting. How strange that the sting of a minute insect, in laying its eggs, should so irritate a plant or the plant tissue, that hypertrophy, or excessive growth, should ensue! Though this may be an unhealthy growth, yet it is just what the insect needs, for in this it lives and grows, and becomes fat and plump, as it feeds upon its own home. A. J. COOK.

Agricultural College, Mich., Aug. 7, 1888.

Friend Cook, in your opening remarks you intimate that these excrescences may form without the agency of insects. I hope you did not mean to say this, for it is hard for me to assent to the idea that a healthy growing basswood-tree would be guilty of disfiguring its foliage in this way. It has been an old fancy of mine from childhood, that these mites, or insects, have a trick, known from generation to generation, of causing the leaf to swell out in this shape, so as to form a home for them, and I want to know if I have got to abandon it. The oak-apple, found on some species of oak-trees, which we used to find so delicious in childhood, that has a crisp shell on the outside, always contains a worm, or several worms, in the core; and as they always grow attached to a leaf, I supposed the worm caused the leaf to produce these beautiful spotted apples. When we were schoolboys, we would sometimes find a tree of a certain kind of oak that would be so covered with these apples that we could, by climbing up, get hatsful of them. When they are quite young, and growing thrifty, the outer shell is not only sweet and juicy, but it has a tartlike taste, somewhat like lemonade or delicious fruit; and then others had a beautiful aromatic flavor, different in various species of oak, that use to make them so attractive that we schoolboys would go a mile or more in pursuit of them. Sometimes when the weather was quite wet and rainy, these galls would contain a delicious liquid inside of the shell—a sort of aromatic lemonade of Nature's own compounding; that is, after the insect had diverted Nature from her ordinary track, according to my theory.

DO BEES EAT PEACHES?

FURTHER DEVELOPMENTS IN THE MATTER.

THE matter has come up a great many times in regard to bees and peaches, and perhaps more this present season than heretofore. A few days ago a neighbor told me that our bees had taken complete possession of his peach orchard. They were "cleaning the fruit right off the trees, and would not let anybody go near the trees." I told him they were eating the decayed peaches and no others. He would not believe me until I took him down to our fruit-house and showed him several baskets of sweet clingstone peaches. These sweet clingstones are the first that ripen, and this year they began rotting, a great part of them, before they got mellow enough to eat. I have taken considerable time and pains to look into the whole matter, and I think I understand it. I bought of a neighbor about two bushels of these peaches, and I immediately sorted out all decayed and mellow ones. Before I got through, the bees were busy on the decayed ones; then they commenced on the mellow ones; and where the skin was bruised they rapidly enlarged the opening, and soon finished the peach. For two or three hours, not a bee was to be found on those that had been sorted out as perfect. By noon, however, knots of bees were gathered in different parts of almost every basket. I sorted them again, and found little white spots, indicating that rot had commenced since I went over them in the morning; and whenever the bees found these indications that decay had commenced on a small spot, they pushed their tongues into it, and rapidly made the opening larger. I then placed a part of the peaches indoors, where the bees could not get at them. In about three hours' time, as before, quite a number of the peaches showed decayed spots. Some had commenced to get mellow, but the greater part of them commenced to rot before getting mellow at all. Well, wherever they were left out of doors the bees found out what was going on, and kept going over the peaches, waiting for a soft spot to appear. Before these soft spots appeared, a whitish down always indicated where rot was going to commence. The appearance was something like mildew. Good peaches, however, that became mellow before this rotting commenced, were never attacked or injured by the bees at all. If, after the peaches get mellow, they are tumbled around in the baskets so as to bruise the skin, they will be attacked by the bees. They will also, within 24 hours, as a rule, commence to decay if the bees do not get at them.

Now, friends, I think you have the truth of the whole matter. The bees do not injure sound peaches. They will, however, get through the skin at once when this process of decay commences, and it will start out through the basket of peaches in just a few hours—that is, if you sort out every decayed peach, and every one that shows any symptoms of decay, at nine o'clock in the morning, during hot rainy weather, by noon you will find a good many that have commenced to rot—enough so that the bees will get at them. In a few hours more, the peach will sometimes be too rotten for sale or for use. Now, I do not know whether this kind of rot always occurs with these sweet clingstones or not. I have noticed it several seasons, but I never saw it so bad as this season. It commences when the peach is nearly ripe, and it may attack fruit before it is mellow, or after it is mellow, or not at all. It is not the same kind of rot that spoils fruit when it rots from overripeness. If you get a remedy for the rot, you will also have a remedy for the bees; and this kind of rot is certainly a very serious matter to fruit-growers.

Now, then, there is one other trouble: When your fruit gets bruised so as to break the skin, the bees will rapidly take out the inside. This makes them a nuisance. People who handle fruit, however, greatly magnify the effects; and my neighbor was greatly surprised to see me pick out peaches and push the bees away with my finger, in order to show him the white mold which is the forerunner, or harbinger, of the rot on every peach where the bees had found an opening. He could hardly believe me when I told him they did not chase his people out of the orchard.

Now, I wish this whole matter might be fully understood, and I wish our agricultural papers would copy the facts I have here given. There is some trouble with bees and fruit, I am well aware; but the trouble is not so great as fruit-men often imagine; and I am sure it will be very much less expense to arrange the damages in an amicable way, rather than to attempt to right the matter by going to law. Let the bee-keeper and the fruit-raiser both look into the matter, and talk it over in a friendly way. I proposed gathering the fruit, or paying the damages; but my neighbor finally declared there were not sound peaches enough there in the first place to be worth talking about. He knew many of them were rotting, even before they were ripe; but he did not know the bees were at work on the trees, *only* on those that had begun to rot.

Another thing: The bees would pay no attention to these peaches, even the sweet ones, were it a season honey could be found in the fields. With us, however, the bees seldom find honey enough to keep them busy at the time when peaches begin to ripen.

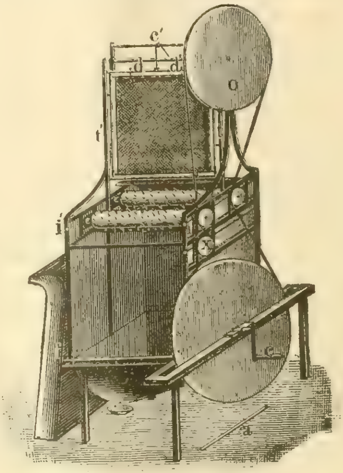
AN AUTOMATIC UNCAPPER.

WHAT THE FRIENDS IN GERMANY ARE DOING.

THE following description of a machine for uncapping both sides of a comb at once is taken from Gravenhorst's *Bienen Zeitung* for July. The article was written by Peter Wagner, of Kreutzstatten, Germany, from which fact we may reasonably infer that he is the inventor of the machine. It seems to be a kind of forerunner of the extractor here illustrated, which was invented by a Mr. Buhne-Lauban, of Germany. Our proof-reader, W. P. Root, translates both articles as follows:

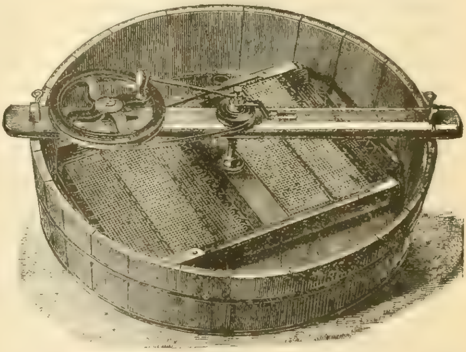
This device meets every requisition that can be made on a machine of the kind, as with it one can remove the cappings of the cells perfectly, by adjusting the rolls to a greater or lesser distance apart (some ⅛ or $\frac{3}{16}$ of an inch), according to the thickness of the comb. The method of uncapping is as follows:

Into the large upright iron frame, which is about half an inch in thickness, is placed the double frame so as to come directly over the projecting iron points below. The frame of comb is fastened in this perpendicularly. Lower the upper screws so that their points will press slightly into the frame. With frames of half size, put in one as just described in the case of a large frame. Lay the stick *a* on top of the frame, with the small projecting points up and down. Press it down slightly; put the other frame on top of this, push it down gently, and lower the screws above. The two frames will thus be clamped together. Now sieze the crank, *c*, and turn it a little to the right or left, as the case may demand. The comb can then, by means of the wheel *o*, be lowered perpendicularly between the rapidly revolving rollers, being guided in its descent by the upright standards *t' t*. Around the axle of the wheel *o* is wound a cord, *c'*, attached to the top of the descending frame, thus uncapping both sides. The machine uncaps one-sided as well as double-sided thick combs, as one has only to put the rollers further apart. It is evident, that, to do this, the pulley *x* must be so adjusted as to make the belt tighter or looser.



AUTOMATIC UNCAPPING-MACHINE.

The covering of the receiving-box is represented by *f*. The torn-off bits of wax and honey are thrown into this, whence they run into a vessel placed below. It is very desirable that combs of equal breadth be used, and such as have no projections or irregularities on their surface, as these are always troublesome when using the uncapping-machine.



EXTRACTING HONEY FROM BOTH SIDES OF A COMB, WITHOUT REVERSING.

Time is money. In extracting honey, the reversing of the combs is a loss of time; and with badly constructed extractors, the work is very unpleasant. At the present time, various kinds of automatic reversing machines are made; but I believe that a machine that throws out the honey clean, and which, at the same time, renders reversing unnecessary, must take the preference. The above cut shows the simplest and consequently most desirable kind of honey-extractor, which Mr. Buhne-Lauban, of Schlesien, constructed. The extractor has been subjected to public test, and has shown, first, that the honey is thrown out clean on both sides of the comb; second, that the combs, when laid in properly, are not injured; and, third, that rapid work can be done with it.

The construction of the extractor is solid throughout. A kit, or tub, of the best kind is used, made of hard wood, painted, and the hoops galvanized. The directions for use are as follows:

Scald out and rinse, before using. The machine works best when placed on a table. To enable the honey to run better, the side opposite the faucet should be elevated a little. The tension of the belt is regulated by a thumb-screw on the under side of the slot cut in the board through which the shaft runs. The combs are then laid in, and secured according to their length and width, and held securely in place by the wire covering.

We illustrate the first machine, more because it represents an idea than because we think it will be any thing that will come into practical use. We believe that uncapping can be done in the manner described; but after taking into account all the machinery, we seriously doubt whether more uncapping could be done with it than with a keen-edged, properly warmed uncapping-knife. In talking with an extensive honey-producer, one who owns 500 colonies in California, he remarked he wanted no better machine than a Bingham uncapping-knife. The second machine we illustrate, because it contains a principle which it may be worth while for us Americans to develop. The idea is rather novel, at least. You will observe that the combs are put in the pockets in a horizontal position, and in that position the honey is whirled out from *both sides simultaneously.* At first thought you would say that this is almost impossible. But if you reflect a moment you will see the principle. The centrifugal force, as the combs revolve in a horizontal position, throws the honey to that side of the cell nearest to the sides of the tub, at the same time flinging away the honey from that side of the cell nearest to the center of revolution. The honey is thus forced up the perpendicular side of the cell. When it reaches the top edge, it flies off, striking the side of the tub. To make the principle clear, we will suppose that a child grasps an ordinary pint cup, filled with water, by the handle. He now whirls on his heel, at the same time holding the cup in a perpendicular position, the cup rotating in a horizontal line. Of course, the water will rush to the outer edge of the cup, and spill out. If the child could turn rapidly enough on his heel, the water would be all thrown out. It will be noticed that, in order to throw the honey out of the combs in this way, they must be revolved much more rapidly than in the ordinary extractor. To prove that honey could be thrown out in this way, we took some sections of thickly capped honey, uncapped them, and placed them down in the basket of the extractor horizontally. The honey was thrown out at both sides at once as clean as could be done with an ordinary extractor. But we noticed that it required a much higher motion. Perhaps it should be remarked right here, that the bottom of the combs (as in the hive) should be placed nearest the center of revolution. Most combs have a little dip to the cells. Of course, to have honey thrown out clean, the incline should be toward the edges of the tub; or, in other words, the bottom of the cell should be nearer the center of revolution than the top is. We do not know that the principle of this extractor will ever come into practical use. The higher centrifugal force required may make it impractical; but if the honey can be thrown out from *both sides at once,* it is a big thing in its favor.

Since the foregoing was written, the *British Bee Journal* of August 16 has come to hand. Mr. Cowan, in that issue, illustrates and comments on that same extractor. As early as 1874 he says he exhibited in the Crystal Palace a machine similarly constructed; but, if we understand him correctly, there was this difference: His combs revolved vertically, with the frames at right angles to the spindle, while the frames in the extractor invented by Mr. Buhne-Lauban, as illustrated, revolve horizontally. In speaking of the success of the old extractor, Mr. Cowan says, "It worked admirably, and both sides were extracted at the same time." He adds, also, that it was "only safe to extract from old combs," as, with the new ones, if the machine were revolved at too high speed, there was danger of smashing them. For this reason he did not at that time think it wise to recommend it, although he had used it for several years in his own apiary. But with wired frames (more recently introduced) he thinks there would be no danger of damaging the combs. He regards it as a great saving of time to be able to extract both sides without having to reverse. We hope to give the principle a more thorough test ourselves.

HEADS OF GRAIN

FROM DIFFERENT FIELDS.

MODERN BEE CULTURE VS. ITALIANS.

ON page 612 you say, in reply to Mrs. Axtell, concerning keeping moth from comb honey, that the reason of the disappearance of the moth of late years is due to the introduction of the Italian bee. Now, friend Root, I shall tell you some of my experience right on that line. I have kept bees here in Missouri 14 years. I began with the old box hive. All our bees here then were the big brown German, and I still have nothing else. All we did in the way of bee-keeping in those days was to stop the plow when we learned the bees were swarming, and run to the house, and hive them in an old box hive. In a few weeks, if we happened to think of it, we would put on a cap for surplus. About the time we supposed that the harvest was over for the season, we went around and took off the caps and got what was in them. Then we let them rest in the weeds until swarming time next year. Result, first, we got little honey; second, hives often became queenless, and then the moth went for them. Each queenless hive, left all the fall to the tender care of the moth, soon became populous with fat worms, which, left alone, soon were on the wing, seeking more queenless hives, empty combs, etc. I now have had no trouble whatever with the moth, for the last four years. What makes the difference? You ask if I got Italians. No, sir, nothing of the kind. I just took GLEANINGS five years, and learned how—that's all. I now keep my bees in well-painted frame hives, using all the latest appliances. I have a mill, and make my own foundation; and if I discover a queenless colony I get a queen, or unite it with some other, and take out and put away all combs not in use and covered with bees. If I ever happen to see a solitary moth, his doom is immediately sealed. The fact is, if you want to raise moth as well as bees, just get your bees all in old box hives, not painted; have them all in the weeds; go to them only twice in a year, and I will guarantee that you will have plenty of moth, even if your bees *are* all Italians. W. H. RITTER.

Springfield, Mo.

Friend R., you have made a big point, and I believe every word of it. Notwithstanding, however, and in spite of the large compliment you pay us, I want to say that Italians have some influence in the matter. The most of us have, at some time or other, tested the matter of putting an Italian queen into a colony of blacks infested with moth worms; and I believe that most of us have seen the Italians, when they were but a few days old, take the worms by the nape of the neck and drag them out on the alighting-board.

BAREHEADED BEES, NOT FOUL BROOD.

I send a piece of comb by this mail, with what I fear is foul brood; and, being inexperienced, I hope that you will be so kind as to tell me as soon as convenient what it is. There are two pieces—one from the old hive and one from the new. I have just discovered it, and it seems to be all through three hives—one old one and the two young swarms out of the same old swarm.

Warren, Mich., July 29, 1888. T. A. BARR.

Friend B., the brood you send is not foul brood. It is only a specimen of perfectly healthy brood. During very warm weather we quite often find cells of young bees uncapped, or, rather, they have the appearance of never having been capped. You will see under "Bees," in the A B C book, that this thing is mentioned.

SHOULD THE SHIPPER BE MADE LIABLE FOR THE SUPERSEDURE OF QUEENS HE SELLS, SIX OR EIGHT WEEKS AFTER DATE OF SALE?

Does the confinement of a good laying queen for six or eight days in shipping affect her fertility? If so, whose loss ought it to be if the queen is superseded in from four to eight or twelve weeks after a safe introduction, and laying? Is it the breeder or the man who sends for the queen, who should be the loser? S. H. COLWICK.

Norse, Tex., July 9, 1888.

No, the confinement of a queen during a shipment of six or eight days rarely if ever affects her fertility. We have probably shipped as many queens as any breeder in the United States. As a general rule, our customer writes sooner or later how his queen pleases. We can speak quite positively when we say that shipment either by mail or express does not deteriorate the laying qualities of a queen. If she is superseded she is superseded for some other reason. Even granted that such deterioration might take place, the shipper hardly ought to be made liable for the loss after six or eight weeks. All kinds of stock are liable to deteriorate after sale. As long as it can be maintained that the animal sold was in good condition at the *time* of sale, the seller is in no way liable for what becomes of the animal afterward. We must apply the same kind of reasoning to queen-bees.

OPEN-SIDE SECTIONS.

Last year I sent to G. B. Lewis and got 1000 of these. I put them in crates without separators, and, owing to the drouth and bad honey season, only a part of them were used. But I had several crates nicely filled with fall honey. They were all well and evenly filled—not one of them bulged out, as I have had them in the other style of sections. I think they are the best, and I am going to try them more fully. I believe that, with them, we can dispense with separators altogether; but we can't tell till we have a good season for honey. A full flow of honey would test the thing more fully. I have had two bad years for honey. I am getting tired, and have nearly concluded to sell my ranch, or rent it out to some younger man to try his luck. The business has never paid me. J. W. C. GRAY.

Atwood, Ill., July 23, 1888.

A SWARM THAT WOULDN'T STAY HIVED.

A very striking thing occurred in the country several days ago, as follows: A neighbor found a bee-tree and cut it down. He hived the bees. There was a fine large swarm, and they came out. Next day he put them back, but they seemed bound to stay on one limb of a bush, and nowhere else. He hived them several times, but they would come out and go to the same limb again. He became discouraged, and let them go. They stayed on that limb 14 days, without even trying to hunt a new home. At the end of 14 days, another neighbor went to the woods and got them off the limb and carried them one mile and put them in a hive with a weak swarm of his apiary. The bees had reduced in numbers considerably. There were probably half a gallon of bees when our friend took them in.

Luttrell, Ala., July 13, 1888. B. G. LUTTRELL.

Friend L., fourteen days is a good while for a swarm to hang on a limb. Of course, they must have gathered some honey during this time, but probably not enough to enable them to build combs. Had they been given a comb containing a little unsealed brood, I am quite certain they would have stayed in the hive the first time.

HONEY THAT GRANULATES, OR CANDIES, IN THE COMB.

I send you a sample section of honey of some kind of granulated sort, that is puzzling bee-keepers here. Some think it honey-dew, some grape sugar. Others think it comes from the pine in the mountains, and now it is left to you to tell us something about it. WILL THATCHER.

Martinsburg, W. Va., Aug. 8, 1888.

Friend T., the same thing, or something quite similar, has been submitted to us a good many times. By consulting our back volumes you will notice that several plants have been suggested as the cause of this trouble. I am inclined to think, however, that this kind of honey is secreted by different flowers. At one time it made its appearance in different localities when the asters were in bloom. Several have suggested, as you have intimated, that it comes from a species of pine. Although it behaves somewhat like grape sugar, I am sure it is a natural product, and not the result of feeding, either intentionally or unintentionally. I do believe it is the product of honey-dew—that is, the kind which you send us, for it has no bad taste, and might be relished by some. Such honey is sometimes very handsome; but when customers come to cut it, they are, as a rule, not very well pleased with it, and it should be disposed of at a low price, with a full understanding of what it is when it is sold. Sometimes we see the cells alternating with cells of good honey. The sample you send us seems to be entirely candied—every cell.

YOUNG QUEENS LAYING ONLY SMALL PATCHES OF EGGS.

What makes young queens sometimes in nuclei lay a patch of eggs about the size of a man's hand, and then stop and lay no more till those are hatched out? I have had a good many young queens this summer that never laid at all. They got their full size, and looked as if they were laying to the uttermost, and I never could find one egg from them. I killed them after a proper length of time. J. LINGENFELTER.

Akin, N. Y., Aug. 8, 1888.

Friend L., the reason why the young queen lays small patches of eggs, and stops when in nuclei, especially if the nucleus is a small one, is that she has not bees enough to take care of any more. Put her in a strong colony, and she will lay right along uninterruptedly. I have tested this a great many times. I have also had young queens, just as you have stated, that would not lay at all in a small nucleus; when placed in a full colony of bees, however, they would go right to work and lay splendidly. I would advise you not to kill any more until you have tested them with a good lot of bees.

MAPLE SUGAR FOR BEE-FOOD, ETC.

1. Is maple syrup as good to feed bees for brood-rearing as granulated-sugar syrup?

2. Is it as good for winter stores?

3. Do bees ever gather honey from field corn?

4. Do bees injure buckwheat? A. F. GAFFNEY.

Claremont, N. H., Aug. 8, 1888.

Friend G., maple sugar is probably not worth as much as granulated-sugar syrup, because it contains more impurities. For some reason it is not as good for winter stores unless it is a very choice quality indeed of maple syrup.—Bees gather honey from the tassels of sweet corn to some extent. Whether they do so or not from ordinary field corn, is a question I can not answer. My impression is, however, that the most they get from any kind of corn-tassels is pollen. It comes pretty near to being corn-starch, you know.—To be sure, bees do not injure buckwheat. Why do you ask such a question? Have you some of the old-fogy element around you who insist that bees injure fruit-trees, clover-blossoms, etc., in taking the honey? Tell all such people to compare the crops of buckwheat, clover-seed, and fruit, in localities where there are no bees at all, with other localities where bees are kept in great numbers. The advantage shows in favor of the bees every time.

COMPARING NOTES IN REGARD TO COMMISSION MEN.

We should like to hear from your readers who sent honey last fall to H. R. Wright, of Albany, N. Y., if they received the prices for it which he quoted in GLEANINGS. If they did, some of us honey-producers would like to know it, as the other commission men did not get those prices; and if they did not, we should like to know that also, as you have given him considerable free advertising in GLEANINGS. W. S. WARD.

Fuller's Station, N. Y., Aug. 4, 1888.

Friend W., from what I know of Mr. Wright I am quite sure he will have no objection whatever to having bee-keepers report in regard to the prices they have received for the honey sent him. We are willing to give any commission man, or anybody else, a good deal of free advertising so long as they help to take our honey off our hands and pay us good prices. Of course, we want to know that the party is a reliable and responsible one, and we are glad to say that friend Wright is good for all he promises.

A METHOD TO GET RID OF FERTILE WORKERS.

I noticed in GLEANINGS of July 1, page 534, that G. O. Salzman wanted to know how to get rid of fertile workers. My method is to close the hive that has been taken possession of by fertile workers; remove it from the stand; place another in its place; take the hive, bees and all, ten or twelve rods away from the apiary; open the hive and take out the frames one by one; shake and brush every bee from the combs, and place them in a tight box and carry the frames into the house. I look them over and take those that have no drone brood or eggs in them, and put them in the empty hive that is on the stand, as quickly as possible. Close it up and keep it closed two or three hours; go to the old hive, and shake all the bees into the grass. In about two hours the most of the bees will have returned to the old stand and clustered on it. Take a frame of brood that has brood in all stages, from some other hive; place it in the center of the hive, then open the entrance part way and you will have no more trouble with the fertile workers. The bees will immediately build from one to eleven queen-cells. I have tried this way several times, without a single failure, but with the most satisfactory results. MRS. C. E. PETTIS.

Garland, Pa., Aug. 4, 1888.

I think your plan is a very good one, Mrs. P., unless it is considerable trouble. Instead of giving the colony brood, and letting them build queen-cells, I would give them a laying queen, especially if they had been long troubled with a fertile worker. Moving a colony away and giving them a new set of combs will generally get rid of the fertile worker; and in our experience we seldom do any thing more than give them three or four combs of good healthy hatching brood. After 24 hours they will usually receive a queen, or a queen-cell either.

ONE OF THE DOG-BANES.

Friend Root:—Please tell by card or GLEANINGS what the inclosed flower is. J. C. CAPEHART.

St. Albans, W. Va., July 17, 1888.

Prof. Devol says:

A. I. Root:—The plant from J. C. Capehart is one of the dog-banes, *Apocynum*, probably *A. cannabinum*, L. It is closely related to the milkweeds, and possesses many of the qualities of these plants, among which is a poisonous principle residing chiefly in the seeds. They flourish along streams, in alluvial soils, and are common in fence-rows.

Columbus, O., Aug. 7, 1888. W. S. DEVOL.

REPORTS ENCOURAGING.

NINE COLONIES AVERAGE 76 LBS. EACH; HOW A LONG-FACED LETTER MAY MAKE A SHORT FACE.

THIS has been a poor bee year; but not, according to accounts in GLEANINGS, as poor as some parts further east. We began the season with 36 colonies. We had 15 new swarms. The first swarm came out May 11. We have prevented swarming so far as keeping on sections and extracting would do so. We have run nine colonies for extracting. These, up to Aug. 5, averaged 76 lbs. to the colony. They have not been strictly attended to. The others, run for comb honey, have averaged 20 lbs. to the colony; but this is scarcely a fair estimate, as many of the weak colonies have yielded nothing. The season has been so dry that about the only honey the bees have had to gather was from alfalfa; and as less of that than usual has been allowed to go to seed, the honey-supply has been lessened. There is quite a growth of the Rocky-Mountain bee-plant, but the bees have not seemed to work on it much this year. The quality of honey has been very fine, the comb very white and delicate, and the extracted honey very thick and white in the early part of the season; later, a little darker. We receive 15 cents for comb in 1-lb. sections, and extracted in small pails. If Mrs. Chaddock's letter was *long-faced*, the illustrations were so amusing that some of us were *short-faced* while reading it. We appreciate GLEANINGS, and should be sorry to be deprived of it. MRS. J. N. BACON.

Longmont, Colo., Aug. 12, 1888.

BEES PUTTING IN GOOD TIME.

I began with five hives, spring count, in the "Golden" hive. I increased to 13. My bees have not made as much honey as I expected. No surplus yet, on account of dry weather. About ten days ago rain began. The bees are putting in good time.

Bolivar, Mo., Aug. 13, 1888. A. J. LOWER.

A GOOD CROP EXPECTED.

It looks now as though we should get a fine crop of honey from buckwheat. It has been in bloom about ten days, and the honey is coming in freely. I have extracted about 50 pounds per colony from it already, and expect to get as much more.

LESLIE STEWART.

Jefferson, N. Y., Aug. 13, 1888.

BEES HAVE DONE WELL.

My bees are doing well. I have some that have made over 100 lbs. of honey since the last day of June. I am well pleased with the queens you sent to me in September. THOS. OBERHITNER.

Deshler, O., Aug. 21, 1888.

Report an off season to date. A 16; B 14; C 150; D over 1400 from 50 colonies. About 600 pounds on hives almost all capped. There are immense prospects for buckwheat. There are over 200 acres in easy reach of my bees. Season so far is good, with prospects of best honey-run to come yet.

WILLIAM W. CASE.

Baptisttown, N. J., Aug. 11, 1888.

LOTS OF HONEY FROM SWEET-CLOVER.

This season has fully tested the qualities of sweet clover. It has yielded a good crop when every thing else has failed. All the white honey we have is from that alone (nearly); and after seeing how wonderfully good it is, I am gathering large quantities of seed. A. SNYDER.

Coeymans Hollow, N. Y., Aug. 4, 1888.

A LITTLE MORE ENCOURAGING.

The Reports Discouraging in the last few numbers of GLEANINGS have been so very discouraging that we feel we should send you the following report for the sake of variety, and in hopes that it will add a little cheer to the general gloom which seems to affect so many.

We keep but a small apiary; and as it is merely what you might call an "aside" with us, the bees get no more care than is necessary to keep them well behaved and out of mischief, so you must not expect any extraordinary results.

Our old colonies got a little touch of the swarming mania, and have made but a little surplus in consequence; so we will confine ourselves to the doings of four young colonies, which have proved themselves the smartest, this year, among the lot. These four colonies were swarmed June 6th and 7th, and put into 1½-story Simplicity hives. Up to date we have taken from these four hives 170 one-pound sections of white-clover honey, and there are now in the hives 112 full and partly filled pound sections, with buckwheat and fall flowers yet to hear from. LEARNED & MILLER.

Newton, N. J., Aug. 9, 1888.

18,000 LBS. OF HONEY FROM 200 COLONIES, IN CALIFORNIA.

We got only about 18,000 lbs. from 200 colonies this year, and I do not suppose any of my neighbors did any better. They are offering from 5½ to 6 cts. now, but I think it will be higher when they find out how short the crop is. We do not feel in any way discouraged yet, for Southern California is surely the home of the honey-bee, for there are but very few days in the year when the bees can not be out in some part of the day, and we do not have to plant for a honey crop, as our hills and mountains are covered with all kinds of bee-feed. Neither do we have any winter to hurt them. The wild sage is our best pasture, also the wild buckwheat. I gathered some sage seed, and I am going to send some to you to try, and see if it would grow in your country. I think it would. I see by GLEANINGS you are going to visit California. If you do, you must be sure to come here and see Los Angeles County. The best time to come is in the winter, when every thing is frozen up in the East, and then I believe you would take a notion to move to California and start a bee-ranch. We are always glad when GLEANINGS comes to hand. I do not know how we could do without it.

F. M. ERWIN.

Thompson, Los Angeles Co., Cal., Aug. 6, 1888.

NO HONEY TO EAT, BUT NOT DISCOURAGED.

I am prospering in bee-busness. I am in a new country—you might say, in the woods, as we have one immense tract of hard-wood lumber thickly interspersed with basswood and some cedar swamps. All the clearings are coming into white clover. There is considerable now. This has been a very poor honey year. White clover did nothing, as it was too dry. Basswood did not bloom at all, hardly, for some reason. It has been very wet lately; may get some fall honey. My bees are mostly in good shape for wintering. I shall have plenty of honey to carry them through, I think, but not one pound of surplus. I put 35 in winter quarters (a cheap outdoor cellar) about Oct 10; took them all out but two in good condition about Apr. 25; lost four by robbing when I was away from home, then sold 11 to different parties, leaving 18 stands when the working season began. I have 39 now, 35 of which I think will be in good condition to winter, so I am not discouraged, even though I have no honey to eat.

E. A. EASTMAN.

Birnamwood, Wis., Aug. 5, 1888.

REPORTS DISCOURAGING.

ANOTHER LONG-FACED LETTER; FROM OHIO THIS TIME.

SURELY bee-keepers can not be accused of giving only the bright side of apiculture any longer, judging from reports that we now see in the bee-papers. In this locality we have no honey; and if it had not been for the aphis secretions (bug-juice) we could say our bees had nothing sweet in their hives. I have about 1000 one-pound sections filled with the sweet, but of a better quality than that gathered in the summer of 1884.

There was about one-third the amount of white clover that we usually have here that bloomed this season. The bees visited this pretty well part of the time, but no white clover has been stored in sections or brood-chamber. The linden bloom was immense here, and the bees could be heard in the trees all day, yet no linden honey was to be found in the hives at any time—no, not even the *smell* of linden honey could be found. Yet I am not like Mrs. Chaddock, looking around to find some one to whom I can give my bees, but shall continue as I have for the last two years, "to live on hope and hard work."

I started in the spring with 53 stands of bees. The average per colony is 19 lbs. comb honey, spring count, and increase to 63 colonies.

SWEET CLOVER.

Your remarks on page 614, in answer to J. George's letter, prompt me to write of my experience with sweet clover during last season and this present one. It was to get to the acres of sweet clover that grows along the Walhonding River, that brought me to this place one year ago last spring; and I can now say that, if I had any fond dreams of big honey crops from sweet clover, these have not been realized. Last year there were acres of sweet clover in bloom in reach of my bees, but it was scarcely noticed by them; but this season they have been fairly swarming on it ever since it came in bloom, but they are storing no honey from it, yet they are getting enough to keep up the heaviest brood-rearing I ever saw at this time of year. Perhaps I am mistaken; but that sweet clover does not furnish much honey at best in this locality is my opinion.

J. A. BUCKLEW.

Warsaw, O., Aug. 6, 1888.

NOT FLATTERING.

The prospect for honey in this locality is not very flattering. The spring opened favorably, and bees increased rapidly; but up to this time they have done comparatively nothing. Blossoms seem to be plentiful, but honey does not secrete. Unless the fall season proves better we shall not reach more than one-fourth of a crop.

D. C. TWINING.

Roanoke, Ind., Aug. 6, 1888.

POOREST EVER KNOWN.

We are having a very severe drouth; just six weeks since we had our last rain. What is to be done with young raspberries set out last spring, when they commenced dying for want of rain? This has been the poorest season for honey and queen-rearing we ever had since I kept bees. There will be no surplus secured in this vicinity, and the prospects for the bees to gather enough honey for winter stores is slim indeed.

Nappanee, Ind., Aug. 20, 1888. I. R. GOOD.

Friend G., the only way that I know of to keep the young plants from dying, during a drouth, is to rake up a dust blanket of fine earth, and bank it up around them, as I have explained several times heretofore. The ground can not bake or dry out very deep when banked up with fine soil. I do not think that watering would help the matter, unless you water enough to irrigate—that is, soak the ground for some distance around. It is a little odd that you should have a drouth when we have hardly had the ground dry enough to work nice since spring.

EXCESSIVE SWARMING, BUT LITTLE HONEY.

After many years of success I must report a failure in the management of bees. I have kept bees in a house apiary, well ventilated, and not had to exceed one swarm in five stands and no after-swarms. Last year there were no swarms and no honey. This year they commenced to swarm May 15, and the end is not yet, Aug. 16. There were three swarms yesterday, and one to-day. Swarms have been very small. Many I have refused to waste time on to hive; others I have doubled and trebled to make fair-sized swarms. From 18, spring count, I have 58 swarms, besides letting some run away as worthless. Of course, it is not necessary to say I have no honey to speak of. White clover furnished no nectar last year or this; yet there has been a steady flow of honey from other sources, but not heavy. I tried the extractor, but they swarm when extracted as close as possible. I had supposed that I knew something about the habits of bees; but my conceit is all gone. All the bees died here last winter but mine.

Moberly, Mo., Aug. 16, 1888. J. RICHARDSON.

OUR QUESTION-BOX,

With Replies from our best Authorities on Bees.

All queries sent in for this department should be briefly stated, and free from any possible ambiguity. The question or questions should be written upon a separate slip of paper, and marked, "For Our Question-Box."

QUESTION NO. 73.—*Can bees in winter quarters live on bee-bread, without honey? If so, how long?*

No. DADANT & SON.

I don't know. MRS. L. HARRISON.

I do not know, but such scientists as Prof. Cook can tell us. O. O. POPPLETON.

1. Yes; 2. For over a week I tried the experiment last winter. DR. A. B. MASON.

No, never. They will starve very soon. See my article in *A. B. J.* A. J. COOK.

I think not, but I believe they will readily *die* on it with or without honey. GEO. GRIMM.

I don't think that bees can live on bee-bread any longer than it is moist with honey. CHAS F. MUTH.

I don't think they could, any more than man could live on solid food without water. PAUL L. VIALLON.

No. I have had bees starve in hives well stocked with pollen easily accessible, and without any diarrhea. C. C. MILLER.

I have had bees die with plenty of bee-bread and no honey. I don't know how long they lived after the honey was all gone. E. FRANCE.

Bees can live for a short time on bee-bread; and as a heat-producing food it is better than honey—i. e., it will produce more heat. P. H. ELWOOD.

Just how long bees can so live, I can not tell; but they often die for want of honey when there is an abundance of pollen present. L. C. ROOT.

No. Bees eat bee-bread mixed with honey in winter; but in my opinion they are better off without it. They will very soon starve on it alone. JAMES A. GREEN.

I think not. It is possible they would eat a little after the honey had become exhausted, but I think they would live just as long without it, and possibly longer. H. R. BOARDMAN.

If the repository is warm enough, they can live on bee-bread just long enough to get the bee diarrhea so badly as to die in a dreadful muss—say a few weeks. JAMES HEDDON.

If I am right, bee-bread is pollen kneaded up soft with honey. If the winter quarters were warm enough they might suck the honey and throw away part of the granules, and thus subsist as long as the supply held out. In ordinary practice, a colony soon perishes when they have nothing left but bee-bread. E. E. HASTY.

I think not. I have been trying to get bees to eat bee-bread when I desired to have them; and although these experiments have cost me at least $50.00, yet I have succeeded only in starving my bees. From what Prof. Cook said in a late number of GLEANINGS, I shall look with interest for his answer to this question. The only time that I ever knew pollen to form any part of the diet of old bees was in a time of famine, that came through cold weather, at a time when bees were living from hand to mouth, and feeding large quantities of brood in June. In this case the mature bees ate up all the brood that had "milk" in it, and evidently the nurse-bees formed the pollen into chyme, so that all were kept from starving till the pollen was used up, the chyme being fed to the old bees. G. M. DOOLITTLE.

QUESTION NO. 74.—*Can colonies be united in the cellar in the winter, without fighting?*

Yes, sir. H. R. BOARDMAN.

I think they can. C. C. MILLER.

I have never tried it. JAMES A. GREEN.

I never tried it, and do not wish to. DADANT & SON.

I should judge so, but I have never tried it. P. H. ELWOOD.

I have had no experience in cellar wintering. PAUL L. VIALLON.

I have never tried it, but I feel sure they could. A. J. COOK.

Yes, I have frequently done this, with no bad results. G. M. DOOLITTLE.

I don't know. I never tried it. I think they could. E. FRANCE.

I do not know, but I can see no object in doing it, even if it can be done. O. O. POPPLETON.

Yes. I united eight last winter, and I could not see that any were killed. DR. A. B. MASON.

I have often had colonies unite in the cellar when they were placed close together. L. C. ROOT.

I never tried it, but I think it can be done safely so far as the fighting is concerned. GEO. GRIMM.

Yes, they will frequently unite themselves, where one colony becomes queenless. MRS. L. HARRISON.

Sometimes yes, and sometimes no. It is a poor place and time to unite colonies, I think. JAMES HEDDON.

Yes. In my first wintering (27 years since) in a warm cellar, with common box hives inverted, the bees of strong colonies sitting close together came to the upper end and clustered admirably together. R. WILKIN.

I have had no experience with bees in a cellar: but if one of the two colonies to be united has been queenless for 24 hours they can be united anywhere without fighting, providing the remaining queen is a laying one. CHAS. F. MUTH.

QUESTION NO. 75.—*How early in the spring do you desire bees to commence brood-rearing?*

March 15. JAMES A. GREEN.

In February. DR. A. B. MASON.

In this climate, the first half of April. P. H. ELWOOD.

As early as possible, according to climate. DADANT & SON.

As soon as possible after removal from the cellar. GEO. GRIMM.

As early as their instincts and conditions will allow. R. WILKIN.

Here in the South they commence in January, but February 1st is as early as I care for them to do so. PAUL L. VIALLON.

From the first to the middle of April, in this locality. **G. M. Doolittle.**

As soon as the pollen comes, and the weather permits flight. **A. J. Cook.**

As soon as the snow begins to melt off, for bees wintered outdoors. **E. France.**

That depends upon how early the spring is—one month before fruit-bloom. **Mrs. L. Harrison.**

Perhaps three weeks before coming out of winter quarters, and possibly not any before coming out. It may differ with locality. **C. C. Miller.**

Not until the rough weather is expected to be over. Beginning or middle of March is early enough in the southern part of Ohio.

Chas. F. Muth.

I prefer that they do not commence to rear brood largely until they can continue it without too much hindrance. Too early breeding is, I think, undesirable. **L. C. Root.**

Just late enough so it can be continued uninterrupted. There is not much to be gained in having breeding begin before the first of March, and possibly later some seasons. **H. R. Boardman.**

Say April 15; later on, such backward springs as 1888. Bad food and worry seems to set bees at winter breeding. Occasionally a colony appears to raise lots of winter brood, and gain by it.

E. E. Hasty.

Much depends. Sometimes we are the gainers by their commencing a month or more before they are set out of a repository, and sometimes it is better that the queens do not lay an egg until they are put out. **James Heddon.**

Not until the weather is such that the bees can obtain a fair supply of natural forage, which, in Iowa, was anywhere from April 10th to the 30th. I found it more profitable to thoroughly protect bees from the changes of the weather than to force too early breeding. **O. O. Poppleton.**

Questions 73 and 74, it seems to me, do not admit of very much discussion. The most of us have had bees die, with plenty of pollen in the hives, after the honey was exhausted. This fact is pretty soon to be learned by almost every beginner. Question 75 is also generally answered sooner or later, by accident, where cellar wintering is practiced; that is, if two colonies are placed very near each other, in the spring, one hive will be found empty, and the one adjacent will have all the bees. My experience is, that the cellar is an *excellent* place for uniting; for after the bees have acquired the same scent by being so long in the same room, they frequently all behave themselves almost like one colony, so far as intermingling is concerned. Friends Hasty and Heddon suggest that sometimes there may be quite an advantage in winter breeding; at other times there seems to be a decided disadvantage. I have known weak colonies to begin breeding, and build up strong during winter time, and come out healthy in the spring; but my impression is, that this can happen only when there is healthy pollen and plenty of stores. I have a good many times tried putting weak colonies into winter quarters, with the expectation of having them build up strong; but all such plans have been almost entire failures. When I planned to have them build up during winter, they did not; and the occasional cases where they built up were when I didn't plan for it nor expect it.

NOTES AND QUERIES.

HOW LONG WILL A COLONY LIVE IN TRANSIT?

WITH sufficient stores, and well packed, how many days will a strong colony of bees live during transit? **K. Cuppage.**

Eady, Ont., Can., July 30, 1888.

[Under favorable circumstances, and not too rough handling, a strong colony of bees will live in transit ten days to two weeks; in hot dry weather, sometimes less than a week; with rough handling, perhaps not more than three or four days.]

HOW TO GET BROOD OUT OF EXTRACTING-COMBS.

I want to know how to get the brood out of the extracting-combs in fall. I put my bees in cellar.

Conroy, Ia., Aug. 20, 1888. **J. A. Ward.**

[The only way to get brood out of extracting-combs without loss is to allow it to hatch out. Before cold weather, put those combs from which you want the brood taken out, to the outside of the hive. Separate it from the rest of the brood-nest by a division-board. If you have a queen-excluding honey-board, put all those combs from which you wish your brood removed, into an upper story. Place this on top of a good colony with a queen-excluding honey-board between. As the queen can not get above to deposit more eggs, in three weeks' time all the brood in the upper story will have hatched out.]

SOUTHERN VERSUS NORTHERN HONEY.

Don't bear down too hard on Southern honey. Make an exception of our palmetto honey. We hope to build up a reputation for Florida honey, such as its oranges have earned. The greater part of our honey is from palmetto. I have never been able to get any surplus from orange. They work hard on it, but use it in rearing brood.

Sarasota, Fla., July 27, 1888. **S. C. Corwin.**

[When speaking of Southern honey as being inferior to that produced in the North, in the summary to Honey Statistics, we meant such honey in *general*. Perhaps we should have made an exception in favor of the palmetto, for, judging from samples tasted, it is nearly if not quite equal to the clover of the North. Thanks for calling our attention to the matter.]

IS IT PRACTICABLE TO EXTRACT HONEY FROM A FEW COMBS WITHOUT AN EXTRACTOR?

Please inform me how a party with two or three hives can extract the honey from the frames without injury to the combs, except by the expensive extractor. I have the A B C, Cook, Langstroth, Alley, Allen, etc., but I do not find any plan there except destroying the combs. **Lemuel Stout.**

Philadelphia, Pa., July 11, 1888.

[There is no practical method of removing the honey from the combs without crushing them, except by the extractor. From a few combs, if the honey were thin it might be jarred out, but you would succeed in getting only a very little out then. It might be possible to extemporize an extractor for a few combs. The possibility of your doing so would depend wholly upon your mechanical ability, and even then we doubt very much if it would pay to do it. If any extracting is to be done, it is far cheaper to purchase a machine for the purpose.]

MYSELF AND MY NEIGHBORS.

The wisdom that is from above is first pure, then peaceable, gentle, and easy to be entreated, full of mercy and good fruits, without partiality, and without hypocrisy.—JAMES 3: 17.

LAST winter I told you something about how much my wife enjoyed attending a bee-convention at Columbus; that is, after we had overcome her diffidence enough to get her away from home and out into the world. Well, I told you then that we proposed, this present summer, going out into the world more than we had done. Many cares have kept us at home, however, especially my wife. When I proposed making the trip to our relatives in Tallmadge, and up to friend Terry's, to see them dig potatoes by horse-power, she got back pretty much into the old track, and fairly begged to be allowed to stay at home. She had not seen any of these friends and relatives for eighteen or twenty years. She had never seen Mrs. Terry at all, and it was a real task to get her to consent to undertake the journey. There were a multitude of objections Well, we have just returned, and I am not very much surprised to hear her declare that these three days have been three bright days in her life. She never knew before there were so many nice people in the world, and so many beautiful homes. She is an enthusiast on this matter of homes, like myself; and just now she is full of enthusiasm in regard to the homes of our *neighbors.* I told you, a short time ago, that my talks about our homes and our neighbors were getting pretty nearly into one subject, and my talk to-day is going to be considerably about our *neighbors' homes.*

The principal point that has been impressing itself on my mind, or, in other words, the message that God has desired me to deliver to you all in this talk, is in regard to having a wider and broader charity for these neighbors who occupy homes, and to have a better faith in these neighbors and friends of ours. I am very much inclined to think that those who speak ill of their neighbors, and who say cutting and sarcastic things, and suggest evil constructions to be put on the acts of our neighbors, are those who do not visit very much.

A few years ago I became acquainted with a family who impressed me with their gentleness and Christian courtesy. They seemed to possess remarkable intelligence, and to exhibit rare refinement, not only among themselves, but toward all their fellow-men. As I became better acquainted with them, it is not very strange that I was soon accused of thinking there was nobody like them; and even when it was suggested they were not quite such saints as they appeared, I stoutly took their part. Finally some one said, if I would use a little reason he would show me how I had been humbugged. I listened, and looked into matters, and I was forced to admit that one member of the family had been guilty of something that was, to say the least, very unwise. Then a flaw was pointed out in the character of another; and finally both the good father and mother were assailed. In fact, little by little, the structure, if such I may call it, of this model household, began changing to dust. Instead of grand, noble, self-sacrificing characters, I beheld narrow, contracted scheming natures, and sadly I began to conclude that it was all outward show, and that I had, as the voice of scandal suggested, been simply humbugged. Did you ever stand just there, my friend? Well, if you did, let my experience be a warning to you. It was only for a little while that I allowed Satan to tear down and trample in the dust these characters that had before been almost sacred and holy. The little text about thinking no evil began to occur to me, and I said mentally, "Get thee behind me, Satan." The lesson I learned was simply this: That we are but dust, the best of us; and he who demands or even expects to find perfection in this world will be disappointed. May God help us to overlook these earthly imperfections in the friends and neighbors around us, as we would that *he* should overlook the earthly imperfections in ourselves! The truth of the matter is, this family of whom I have been speaking are, as a whole, excellent Christian people, and rather above the general average; but in my admiration of the virtues which they really possessed, I had, perhaps, been a little extravagant, and had forgotten to bear in mind that they were, like ourselves, human. When their defects had been carefully exhibited, one after another, by one who was, perhaps, unconsciously prejudiced, and when things had been pointed out to me that I could not avoid seeing, I was in danger of listening to Satan's suggestions, that the world is all a hollow sham. Do not, I beg of you, my dear friends, forget the good that exists in almost every human character when you are called upon to take notice of the bad; and do not, I beg of you, forget for one moment the great danger there is constantly near almost all of us, of being in haste to think evil. The text at the head of this talk suggests the true secret of enjoying life as God intended we should enjoy it.

These thoughts that I have just been speaking of were brought vividly to mind in visiting at friend Terry's. It has been to me for some time a sad puzzle to know why so many should feel called upon to pitch into our friend, and try to find faults with his farming or with his writings. You may remember that I was one of the first to call attention to this man who chose potato-growing for his lifework. I almost by accident dropped in to a farmers' institute held here in Medina. I heard him read a paper, and I went home and told my wife that, if he kept on in the same line in which he had started, he would be one of the shining lights in agriculture of the present age. Mr. Terry had nothing whatever to sell. In that respect he was more free from the charge of having an ax to grind than your old friend A. I. Root, when he came before the reading public. But it did not seem to make very much difference. Those of you who read the agricultural papers, especially the *Ohio Farmer*, know how friend Terry has been treated, almost from first to last. I have sometimes wondered why our agricultural papers were in the habit of giving place, as much as they do, to unkind and uncourteous criticism. Very likely, a certain amount of good-natured controversy adds spice to what might otherwise be dry reading. Very likely our editors have discovered that few subjects interest people as much as some discourse in regard to our friend *Terry*. I myself confess that, when I look over the pages of the *Ohio Farmer*, I first turn to see if there is any thing from friend Terry. I next look for the articles where the name "Terry" occurs, running down the columns; and even if these articles are overbearing and rude and unreasonable, I read them all through. I believe that, as a general thing, they contain valuable information; but I do feel, dear friends, that we might have all this valuable information just exactly as well, and have every article written in the spirit of our little text —"pure, peaceable, gentle; easy to be entreated; full of mercy; without partiality, and without hypocrisy." One would have to be almost a saint, I admit, to have a character in *full accord* with this summing-up.

Please bear with me, dear friends, if I have a good deal to say about Mr. Terry just now, for this subject illustrates quite vividly the point I wish to make. A great many farmers have declared that the number of tools which he recommends for a small farm is dangerous advice; that it would shipwreck almost any farmer to put so much money into implements; and one writer recently took up this point strongly, and for illustration declared that friend Terry's tools and implements cost him at least *one hundred dollars per acre*. A simple sum in addition, however, showed that his tools could all be bought for the modest sum of *sixteen* dollars per acre! Another wrote an article that I should call abusive, because Mr. Terry happened to mention that his horses are kept entirely on nicely cured clover hay, without any grain; and over and over again I have heard farmers say that the thing was an impossibility, and that Mr. Terry did not tell the *truth*. Now, I do not know that friend Terry has ever recommended anybody to follow his practice in this respect. He simply remarked that that was the way *he* did. Of course, others can do as they choose, and no hard feelings.

At our visit we discovered that Mr. Terry's beautiful new stables, in connection with the model barn, contained no *mangers* whatever. In fact, he had no grain on his farm. He does not raise oats or corn, and has no use for either of them. Not a pig nor a chicken is to be found on his premises; and this may account somewhat for the order and neatness, and freedom from any bad smells, which characterize his premises. This matter of feeding no grain has called forth more unkind hits than any thing else I know of; but why should he be accused of having a selfish motive in advocating grass instead of grain? Many of my farmer friends have insisted that his horses do not draw heavy loads. Another declares they certainly do not go off from a walk, etc. When we arrived there, his two teams were absent, carrying loads of wheat to the depot. We watched them as they came in on a good smart trot—with an empty wagon, of course. They were large, powerful farm horses, and I think they would stand up to work fairly with any grain-fed team.

Friend T. has advocated quite strongly, of late, a covered barnyard. Surely no farmer or anybody else could object to such an arrangement. Kind reader, what is the state of the barnyards in your neighborhood a good part of the year? Well, one writer attacked the covered barnyard almost sneeringly. When we arrived, as the day was warm my cousin wanted his horses in some shady place, out of the sun, so he drove into the covered barnyard. When the two big teams came home they drove in also, to back up their wagons to load up their wheat. You see, if it rains they can get a load in readiness to start all the same. Well, my cousin's team and buggy were not in the way at all, because there was plenty of room for the two other teams, with their great wagons, all inside of the covered barnyard.

A tool-house is an excellent thing, as we happen to know; but to get all the tools under shelter they must be pushed up pretty closely together. During the hurrying time of harvest and planting, it is a very great convenience to have the tools where any one of them can be hitched on to speedily, and yet have them all sheltered from the sun and rain at the same time. This covered barnyard cost only $200, yet it gives ample room, and has a metal roof at that.

In our neighborhood, and at our conventions, a great deal of bitterness has been exhibited in regard to cutting potatoes to one eye, and friend Terry has been broadly accused of damaging the public by sticking to this singular proceeding, which has neither sense nor reason to commend it. Those who make the latter point, however, have never read his repeated explanations. Well, I timed my visit so as to be present when they were digging their potatoes. I saw the McCallam potato-digger, made all of steel and iron, drawn by a pair of the same grass-fed horses, that did the work of *fifteen men* in digging potatoes. It did it, also, nicely and easily, and left the ground in beautiful condition for wheat. I helped to pick up the potatoes, and noticed the remarkable point that friend Terry has made so often. The potatoes were almost all large nice ones, with comparatively few small ones. A great deal of the time one large stalk would be all there was in the hill. This one large stalk gave a cluster of the finest large potatoes. Had there been several eyes there would have been several small stalks in place of this one large one, and the result would have been the same as eight or ten stalks of corn in a hill—no large ears, but a great lot of nubbins.

To test the average yield per acre, a square rod of ground was measured off in different parts of the fields, and the general average could be arrived at quite readily. If a square rod gives two bushels of potatoes, the average yield is 320 bushels per acre. At some places the yield was less than this, and at others more. In the swampy places that had been so thoroughly underdrained, the yield would probably go 400 or 500 bushels to the acre. The potatoes were monstrous in size, and lay piled in great heaps; and these same spots that were for years, before he got the place, only worthless nuisances, now give immense yields, year after year, without any manure whatever.

Now, it is all quite right to question and point out faults in the system recommended by any of our teachers at our farmers' institutes. But it should all be done, dear friends, in the spirit of our text, and then there is not a bit of trouble. Let me give you one illustration before I close.

At a farmers' institute held not many miles away, the subject of feeding and caring for cattle was up. Mr. A, a successful farmer in this line, was asked some questions. He finally gave his plan at considerable length. Like Terry's teaching, it was an astonishment to many. For instance, friend A has a great big barn, and he never has any haystacks nor grainstacks nor strawstacks out of doors at all. There is room enough inside, and he can not afford to stand the loss caused by leaving his stacks—not even his strawstacks—out in the rain. After he sat down, somebody called him up again, to know what breed of cattle he had. Now, friend A is a breeder of choice fine stock, and is interested in selling it. Heretofore he had not said a word in regard to his especial strain of cattle; but since he was called upon he answered fairly and honestly, and then it turned out that the success of his system depended a good deal on his strain of cattle without any horns.* More questions were asked, as is often the case at farmers' institutes, until the chairman began to watch anxiously for an opening to call the house to order, that they might take up other topics. At this point, an old farmer, whom we will call B, spoke out:

"Mr. Chairman, I think A has *advertised* his muley cattle long enough. Let us talk about something else."

The room was silent. Mr. A sat down. *He* had not advertised his cattle a bit. He had simply answered questions, and that reluctantly, under the circumstances. Of course, it was not the thing for him to stir up a quarrel by retorting to B that he had not advertised a bit, intentionally, but that he had only answered questions when called upon to do so. At the intermission, a good many felt indignant, and told Mr. B that he ought to make an apology. He was stubborn, however; but by the next morning, so many insisted on it that he did come up to A and say something like the following:

"Mr. A, I guess I *was* a little hasty yesterday. It has always been my habit to speak right out, without thinking; and while I still think you had dwelt on that point long enough, I want to beg your pardon for speaking of it in the way I did. I will try hereafter to be more careful about speaking on the impulse of the moment."

Mr. A replied: "Why, bless your heart, friend B, it is all right. I did not mind it. Our lives are not long enough to waste time in taking up things of this kind."

The two men are better friends to-day, perhaps, than if this thing had not happened. Now, the point I would wish to make is right here: At our institutes and conventions, this state of affairs is constantly coming up. Somebody, or perhaps several persons, will hang on to one subject longer than is profitable for the meeting as a whole. It is perfectly right and proper to call for a change of subject; but as time is valuable, the person who calls for a change of subject should be brief and to the point. How would this do?

"Mr. Chairman, this is doubtless interesting to a good many; but if our friend who is on the floor will excuse me, doesn't the general good of the meeting demand that we move on to other subjects?" Or in case somebody *has* been grinding his ax, and occupying time, which, I grant you, sometimes happens, let some good Christian man stop it by something like this:

"Mr. President, I have no idea that the brother who is speaking intends to advertise his wares here at this convention; but lest it might look so to some who do not know him as well as we do, shall we not take up the next topic?" At such a time Prof. Cook, Dr. Miller, or Dr. Mason, will do all that needs to be done, and do it handsomely, without hurting anybody's feelings. If no such person happens to be present, then God calls upon *you* to do just what you see should be done; and he calls upon you to do it in the language of our text. Ask God first to give you wisdom, and he will; and we know that "the wisdom that is from above is first pure, then peaceable, gentle, easy to be entreated, full of mercy and good fruits, without partiality, and without hypocrisy."

THE WAY FRIEND TERRY RAISES STRAWBERRIES, ETC.

SUGGESTIONS TO THOSE WHO LOVE TO GET OUT IN THE OPEN AIR AND "WORK IN THE DIRT."

ABOUT as soon as I could consistently ask the ladies at friend Terry's to excuse my cousin and myself, we put outdoors on a voyage of discovery. Friend Terry was absent at the time, as you will remember, and my first investigations were in the direction of the strawberry-bed he has told us about. But it was all neatly plowed under, and great big plants of clover were already coming up where before had been so much fruit. These little clover-plants were so large and thrifty that I did not recognize them at first. It is wonderful how every thing seems to grow on friend Terry's premises. Well, on the other side of the house we found almost an acre of strawberries and raspberries that were a sight to behold, I tell you. I thought I had seen strawberry-plants equal to any raised anywhere; but although these were set out only last spring, they were, during

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*By the way, dear brethren, wouldn't it be a Godsend if we could have a strain of *farmers* without any horns?

the last of August, great monstrous clumps of fruit-crowns, ready to bear next season. I do not understand it yet. After friend Terry got home we went out among the plants, and I questioned him.

"What manure, and how much, did you use to get this wonderful growth?"

He quietly replied, with one of his peculiar smiles:

"Didn't use any manure at all."

I opened my mouth in astonishment, and he smiled again, and added:

"We plowed under *clover*."

You know the great controversy between friend Terry and Professor Chamberlain has been on stable manure and clover. Friend Chamberlain is strong in defense of stable manure; and since friend Terry has started in that line, he has been putting in some heavy blows for clover; therefore when he went to raising strawberries he may have thought he would demonstrate what clover would do, in order to keep up his end of the argument. I think a good many told him not to put the berries on clover sod. Now, the next point that would come up is, How big a growth of clover did friend Terry *have* to plow under, where those plants were growing? Well, I shouldn't wonder if it were a growth of clover that few of us ever see. Across the road we found a twelve-acre field where the clover was higher than our knees, and yet this field had already given 24 big loads of clover hay this season. His horses eat clover and no grain; his potatoes grow on clover sod, with just a little manure, and this great growth of strawberries was over clover sod and *no* manure. Of course, they had every advantage of cultivation, and no weeds were allowed to grow. Furthermore, every runner was cut off as soon as it was visible.

Said I, "Friend T., isn't it almost as big a task to keep these runners clipped as it is to weed strawberries? Who tends to cutting the runners?"

He quietly replied that he cut them himself.

"But, how can *you* afford to use your valuable time in clipping off strawberry-runners?"

"Oh! I do that when I need rest, and so it does not cost much if any thing."

Now, friends, perhaps you think it a funny way of resting; but I want to tell you that nothing in the world rests me so much as doing something of this sort that I enjoy and love. I do not know who would not love those strawberry-plants. It would revive and rest me just to look at them. I am going to work to-day to fix a piece of ground according to my notion for strawberries. With the aid of the transplanting-tubes, we are entirely independent of rain. In fact, I should prefer not to have it rain until I get them all out. I can pulverize the ground, and roll and harrow it, a good deal better when the soil is tolerably dry. Friend Terry plants the strawberries only in the spring. He makes them grow as I have told you, just one summer, and then gets one crop of fruit, and then the whole bed is plowed under, a little more than a year after the plants are first set out. A good many others are adopting just this plan. I tell you it seemed too bad to plow such beautiful plants under when they had given only their first crop; but he says the enormous expense of getting the weeds out after once fruiting is too great to think of.

A week ago I visited a successful fruit-grower who showed me a patch of strawberries at one side of his cornfield. Instead of cutting the runners, as friend Terry does, he lets them grow and root just as much as they please. Now, although the plants were put out only last spring, the whole ground was covered with an enormous growth of plants. Of course, none of them would compare in size with friend Terry's *single hills;* but I knew he would get a great number of quarts, even if the berries were not so large.

"But, friend S," said I, "what has been the expense of weeding this patch of berries standing so thickly, during this wonderful season for growing weeds?"

He smiled too, as he replied:

"The expense has not been very much."

"How many *times* did you weed them?"

I saw by his smile that he felt a little proud of his success as he replied:

"Mr. Root, those strawberries have been weeded only *once*."

As before, I opened my mouth in astonishment. It has cost me a good many dollars to weed a patch of strawberries just about like it, and I began to suspect there was some trick I hadn't got hold of, so I continued:

"Look here, Mr. S., what crop grew on that land last year?"

"Didn't *any* crop grow on the land."

"Well, what did you do with the land last year?"

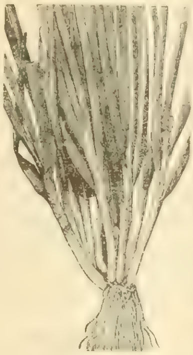
"Oh! I just plowed and harrowed it."

Now you have the key to it, friends. He worked that ground all last season, to kill the weeds. He turned it over and over, and made every weed germinate that he could, and then killed it; then he fixed it nicely and put his plants out this spring, so there weren't any weeds of any account to grow, because they made their growth last year. I mentioned the matter to friend Terry, and asked him if we could not clear the ground of weeds in this way and raise a crop too. He replied that we could, without any trouble at all. He said he thought he could raise a crop of potatoes, and keep the ground just as clean, and make every weed grow, just as well as to work it with no crop. Do you see the point, friends? These successful tillers of the soil have tricks and sleights so as to save the enormous expense that such blunderers as we (a good many of us) seem to think necessary. Both of these gentlemen asked me where I purchased my manure that I used in such liberal quantities. When I informed them that I got it from the livery stables, and that I mulched my berries with this manure, they said they did not wonder that I had got discouraged in fighting weeds. Friend Terry, with his clover, has no such terrible drawbacks to contend with. The use of chemical manures, and guano also, avoids seeding our ground with seeds that are so common over the greater part of most farms. In riding through the counties of Medina and Summit, we saw weeds, weeds, weeds, along the roadside, over in the fields; and wherever there was a patch of potatoes, then we saw weeds in earnest. One man was cutting them down with a scythe, and they were almost as high as his head. I do not know whether he found any potatoes after he got down to them or not. At home I left some tolerably clean potatoes; but I don't remember of seeing any more until I got into Tallmadge, Summit County. Twenty-five miles, and no clean crops!

Now, friends, I am sure that you will agree with me that this whole matter is interesting and valuable, not only to farmers, but to almost everybody who depends on the soil for a living. But the "boss printer" informs me that, if I keep on, I shall crowd out valuable articles from others, so I shall have to stop right here. But in our next issue I am going to have *eight pages extra*, so I can talk to you as long as I please; but before I finish up this talk, I want to say something about

THE NEW WINTER ONION.

This onion was first, so far as I know, advertised by Gregory; since then by M. T. Thompson, of the Cleveland Nursery. This man is so much of an onion-grower that they used to call him "Onion Thompson;" and lately our friend Beckert, who originated the Chartier radish, sends out a little circular, describing it. Our illustration opposite was copied from his circular. This onion does not produce a bulb at all, or at least only a very inferior one. All it is raised for is its long succulent stalks, with a sort of root, or small bulb, on the lower end. It pleases me, because it is a plant so tenacious of life that it is almost always growing, when the ground is not frozen up. It has such an inveterate habit of growing that it grows any time when in the ground or out of the ground; and, in fact, the only place to keep it is *in* the ground. During August and September the sets may be gathered and sold; but you can not keep them over winter. The sets grow in the form of little onions, on top of the stalk, like the old-fashioned onion-sets we used to see when we were children. We gather these sets as soon as they are ripe, say about the middle of August; then we sprinkle them in a drill, about as we would peas, say from three to five inches apart. These drills may be a foot apart, and just as deep as you can get them and not have the sides cave in. We want to get them down deep, so that, when the frost throws the earth around them, we shall have a long white onion. They will come right up, and grow all through the fall. You can pull them for small onions any time you like, in fall or in winter, when the ground is not frozen, or in the spring. What you do not pull will send up a seed-stalk in May or June. This seed-stalk bears sets. But this is not all. After the seed-stalk has borne its sets, and dried and fallen down, the whole onion commences straightway to send out a great number of little onions all around it, as shown in the cut adjoining.


THE WINTER ONION, IN THE FALL OF THE YEAR.

Well, about the time you gather the sets you want to pull up the parent plant. Now pull it to pieces as much as you can. You had better have a few roots on each piece; but if you do not, they will grow almost as well. Plant them exactly as I gave directions for planting the sets, only you may put them a little further apart. You had better cut the tops off, so they will stand about six inches above ground. We cut them off after they are planted, with a pair of sheep-shears. Each piece will now become the center of a cluster of onions. Let them grow all they want to. Of course, the richer the ground the better it is as for any kind of onions. Now, if you have a greenhouse, pull these up just before the ground freezes and set them in a bed made expressly for onions, at least a foot deep, and 2 inches apart. If you are crowded for room, you can put them under an ordinary bench, putting a foot-board in front to keep up the soil. As fast as they grow, bank them up with peat or some fine soil and they will keep striving to get through it to get to the light. In this way you will have great clusters, or clumps, of long white onions that will bring a nickel a clump from any time after the holidays till spring.

Special Notices.

DISCOUNTS FOR EARLY ORDERS.

We wish to call our readers' attention to our advertisement on another page, under the above heading. Here is an excellent opportunity to save money in buying your bee-supplies. Please read our advertisement through carefully, and see if you can not profit by it during the coming months.

DISCOUNTS FOR GOODS TO BE EXHIBITED AT FAIRS.

We have overlooked this matter this year until so late a day that, to give a schedule of articles on which we will allow a discount for exhibition at fairs, as we have done in the past few years, would be of little use, as you will hardly have time to get the goods for exhibition. Those of you who have the August 1st GLEANINGS for 1887 will find our list for last year under Special Notices. We will do the same as we did then for those who will have time to get goods before their fair, and who care to make an exhibit.

We shall be glad to furnish all the sample copies of GLEANINGS and price lists that you want, for judicious distribution. We will allow 25 cts. per name commission for subscribers to GLEANINGS secured at fairs.

Our new edition of the A B C book is almost ready, and you can also take orders for this, and we will allow you a commission of 35 cts. on each cloth-bound or 25 cts. on each paper-bound book.

HOARHOUND HONEY.

We have received from friend Drake a case of 120 lbs. of the hoarhound honey mentioned on page 427, June 1. The honey tastes exactly like hoarhound candy, and I call it tiptop for any one who likes hoarhound. I presume that, without question, it will be excellent for coughs and colds, just the same as hoarhound candy is good for coughs and colds, and everybody knows that is a fact; but your humble servant is inclined to inquire *how* they know, and whether the matter has ever been settled by careful tests made by our experimental colleges. This last sentence is put in parenthetically. The business before us now is to furnish the public with hoarhound honey. If any of you want a sample, we will put it up in Muth's dime jars for ten cents. Isn't it funny that a dime jar costs exactly ten cents? A whole pound, package included, will be 15 cts.; 10 lbs., package included, $1.20. It costs us 4 cts. per lb. to get it here from California, or the price would not be so high; but you know, friends, it possesses rare medical qualities. It is genuine bee honey, made by the bees, and the honey is gathered from hoarhound. If you want a case of 120 lbs., send directly to friend Drake himself.

GLEANINGS IN BEE CULTURE.
Published Semi-Monthly.

A. I. ROOT,
EDITOR AND PUBLISHER,
MEDINA, OHIO.

TERMS: $1.00 PER YEAR, POSTPAID.

For Clubbing Rates, See First Page of Reading Matter.

MEDINA, SEPT. 1, 1888.

The fruit of righteousness is sown in peace of them that make peace.—JAMES 3 : 18.

OUR subscribers now number 8391, a gain, in spite of the poor season and those who drop out, of 37.

LOOK OUT FOR HIM.

WE have for some time past had complaint from different parties in regard to Mr. F. J. Crowley, dealer in apiarian supplies, Batavia, Genesee Co., N. Y. We are now informed that he is in Batavia only a part of the time, and is no way responsible.

THE WHITE-PLUME LETTUCE.

WHEN I last wrote you, I thought my prize was surely within my grasp. At the present date, however, the little plants that showed so clearly the white strips when small have now all turned green, and look like ordinary Boston Market lettuce, only they seem to have a remarkable disposition to run up seed-stalks without making a head. Very likely the white will show itself again later on, and possibly I may find some plants that will make nice heads without sending up a seed-stalk. Perhaps trying to get good heads in mid-summer would be difficult under any circumstances.

SOMETHING FURTHER CONCERNING THE INVENTOR OF THE HONEY-EXTRACTOR.

IN our reply to Charles Dadant, we indirectly carried the idea that little if any thing had been said about Hruschka, the inventor of the honey-extractor, until the appearance of our illustrated article on p. 500. We had entirely overlooked the fact at that time, that our brother-editor, T. G. Newman, of the *American Bee Journal*, had given a very complete and interesting account of Hruschka's life in his journal, years ago, and subsequently incorporated the same in the first edition of "Bees and Honey," which now lies before us. We presume friend Newman realizes the fact as well as ourselves, that it is hard to keep track of all that has been said and done in apiculture.

STATISTICS.

IN the *Bee-Keepers' Review*, page 118, brother Hutchinson says: "If reports from only five correspondents in each State will furnish us with sufficient data (and it certainly has that appearance now), then a vast amount of labor and expense is saved that would be incurred were there a correspondent in each county." Just so. We have come to about this conclusion too. In fact, we have thought so ever since the first batch of statistics was gotten out. The expense of having a correspondent in each county, and the trouble of getting that correspondent to reply every time blanks were sent, would be considerable.

"THE REVIEW A HOME-MADE PAPER."

UNDER this caption there is an interesting editorial in the last number of the *Review*. "We," as the editor styles himself, "prepares the copy, sets the type, and makes up the form. Mrs. We addresses the wrappers, and stitches the papers after our little daughters have folded them. She also wraps up for the mail all the papers that are left after the little girls 'get tired.'" All this work is done in the Hutchinson mansion, surrounded by a grove of shade-trees. GLEANINGS started a good deal in this way, and she is not a bit ashamed of such a beginning, especially as it has since seemed to foreshadow a fair measure of success. Success to Mr. and Mrs. "We," and to the little girls who sometimes "get tired."

THE EXHIBIT FROM THE HOME OF THE HONEY-BEES, AT THE CENTENNIAL, COLUMBUS.

WE have already shipped nearly a carload of machinery and apiarian supplies, etc., to be exhibited in Columbus. This exhibit comprises samples of nearly all the implements used in bee culture, the uses of many of which will be illustrated on the grounds. Our latest improved machinery for making sections will be set in operation. While we do not expect to achieve any thing very great in the way of exhibits, we have made a greater effort than we ever have before. Perhaps we should remark, that there have been several inquiries as to what day we will be on hand. A. I. Root, Ernest, and John, expect to be present at the National Convention, October 3, 4, and 5. One of the trio will probably be present occasionally at other times, to look after the exhibit.

THE ARKADELPHIA CASE.

ON page 761, current issue, and 586 for the July 15th issue, allusion is made to the Arkadelphia nuisance case, which was to come to trial July 16. It will be remembered that Mr. Clark, the defendant, was remanded to jail in consequence of his refusal to remove his bees from the city limits, on account of the alleged nuisance of his bees. Mr. C. has been quite severely persecuted by the mayor and the city council. The National Bee-keepers' Union pledged $250 for the defense of the case in the circuit court. The decision has now been rendered. The latter court held that the city ordinance declaring the bees of the defendant a nuisance was void. Another victory has been scored for the Bee-keepers' Union, and the might of right has come to the front. The city of Arkadelphia has decided to appeal the case, however, to the supreme court. Brother Newman, in his editorial remarks, says, "This is very fortunate, for we want a decision which will count; one from the highest court is what we need to declare bee-keeping is *not* a nuisance, and it will be done. The Union has paid the retaining fee, and it will be ably defended again by Judge Williams, the most successful attorney in Arkansas." So long as the Union uses its power so judiciously, the bee-keepers ought to help support it.

GRANULATED SUGAR—CAN IT BE SUCCESSFULLY ADULTERATED?

A FEW weeks ago the *American Farm News*, published at Akron, O., in an article on the adulteration of sugar mentioned some powdered sugar obtained of a grocer in Akron, that was only about half pure sugar, or something to that effect. We sent at once for a sample, which was received. Now, I am well aware that there is a much greater chance for adulterating *powdered* sugar than *granulated*. The granulated shows the grains peculiar to the crystallization of the sugar; and, in my opinion, it never has been successfully adulterated. The difficulties are, that there is no substance that is white, sweet, soluble in water, and which will at the same time successfully imitate the crystals of sugar. The latter can be seen more clearly by the use of the microscope or magnifier. I examined the sample of spurious powdered sugar as soon as received, and discovered here and there little lumps not so large as the head of a pin. These were sweet, but had a peculiar stickiness suggesting grape sugar. I sent part of the sample to Prof. Cook, who handed it to Prof. Kedzie for analysis. Here is what Prof. K. says:

> PROF. A. J. COOK:—I have analyzed the specimen of powdered sugar handed me from A. I. Root, and find it contains 4 per cent of glucose. FRANK KEDZIE.
> Aug. 22, 1888.

This four per cent was no doubt simply particles of grape sugar which I found. They could be easily detected by the eye; and when the sugar was dissolved in water, these lumps settled in the bottom of the glass. Grape sugar can not be pulverized; therefore in order to mix it with other sugar it must be made in little particles by grating the lumps or by some other process. Even then it would stick together in a solid lump again, unless it were taken in small quantities, and mixed all through granulated or pulverized sugar. The analysis cost $2.00. Now, friends, don't we need a little more charity for our neighbors who deal in sugar, and for the great refining establishments of our land? False statements in regard to the adulteration of sugar have not been quite as bad as about honey; but it is a good deal in the same line.

600 DOLLARS

Will buy 250 colonies of bees in L. frame, and 65 honey-cans, cased, 2 in case; one 14-inch foundation-mill with tanks, all as good as new; one saw-table, with saws; honey-extractor and wax-extractor; 125 shipping-crates in flat; 125 supers, part filled with honey; a few thousand sections, with all fixtures belonging to a first-class apiary. 17-19d
ANTHONY OPP, Helena, Phillips Co., Ark.

TWO-STORY BRICK RESIDENCE,

4 lots, Ice-House, Stable, Bee-House, etc., etc., and, if desired, 8 acres of land within 2 blocks. This is good property. Belongs to heirs; must be sold, and will be sold cheap. H. L. GRAHAM,
17-18d Grandview, Iowa.

Northern-Grown Seeds and Plants for our Friends in the South.

A few days ago one of the friends in Texas wanted to know if we had any nice cabbage-plants. He said they could not raise them down there in the summer time, as the weather is too hot then. I sent him 50 plants by mail, and received a telegram at once for 1000 by express. As I understand it, they plant them out at this season of the year, and leave them in the open ground all winter. So many have written from Florida and other Southern localities for new seeds of this year's raising that I have thought best to make a list of what we have *of our own raising*, ready to send out.

Golden Wax Beans. 10c per pint; $1.50 a peck.

Extra-Early Lima Beans. These are fully equal to the old Lima beans, and are fully as productive, and from ten days to two weeks earlier. We consider it an acquisition. Price 15c per pint, or $2.00 a peck.

White-Plume Celery. ¼ oz., 10c; ounce, 35c.

Sweet Corn. Three different kinds: Corey's Extra Early; Ford's Early; Crosby's Early. Price of either, 5c per half-pint, or $1.00 per peck.

Corey's corn this season has not only proved to be the earliest by ten days or two weeks, but the ears are surprisingly large and fine; and the quality, if cooked at once, as soon as picked, is almost equal to any sweet corn we have. It is quite an acquisition.

Rawson's White-Spine Cucumber. From selected fruit, 25c an ounce, or $2.50 a pound.

Grand Rapids Lettuce. ¼ oz., 10c; ounce, 35c; pound, $4.50.

Now is the time to sow Grand Rapids lettuce, to be put into cold-frames or greenhouses as soon as the weather demands.

Henderson's New York Lettuce. Ounce, 25c, or $3.00 a pound.

We consider this the best head lettuce for outdoor culture known. Even the chickens have discovered that it is of superior quality. They will run over our beds and pick out every head of New York lettuce, without paying any attention to any other kind.

Winter-Onion Sets. ¼ pound, 5c; pound, 15c.

Now is the time to plant these out, according to directions on page 695.

Alaska Peas. This is the favorite early pea of the *Rural New-Yorker*, and will yet give a crop of peas in our locality, if planted now. Price, ½ pint, 5c; peck, $1.50.

Stratagem Peas. From selected pods; ½ pint, 10c; peck, $2.50.

Champion of England Peas. Price same as Alaska.

Early Ohio Potatoes. Selected expressly for seed; 25c a peck, or 75c per bushel.

Tomato, Mikado. Selected seed from large smooth specimens; ounce, 25c; pound, $3.00.

We still give the Mikado the preference for an ALL-PURPOSE tomato. You can prepare them quicker for the table or canning, and get more bushels of nice tomatoes than from any other kind. We are marketing BUSHELS of them that weigh from one pound to a pound and a half apiece. We consider the Golden Queen the best yellow tomato. The Dwarf Champion is a great acquisition for an EARLY tomato. It is not only very early, but the shape is equal to any of our best kinds. They are smooth and handsome, and ripen all over nicely, quite a little ahead of the Mikado. We think this tomato is a decided acquisition. Price of the seed for the present will be double that of the Mikado. The above are all the seeds we have ready for the market, of this year's raising. If wanted by mail, the price of postage will be just one half that laid down in our seed catalogue; that is, we now send seeds by mail by the ounce, free of postage; by the pound, 9c added for postage and packing. Peas and beans, 8c extra for each pint, and corn 6 cts. extra, on each pint, for postage.

Strawberry Plants. We have a beautiful lot of these ready to ship, of our three choice varieties; viz., Sharpless, Jessie, and Jersey Queen. Price 10c for 10; 80c per 100, or $5.00 per 1000. If wanted by mail, add 3c for a package of 10, or 15c on a package of 100.

You will observe that the Jessie is now the same price as the others. We make this reduction as we have such a very large stock of extra-strong plants. There is no difficulty in fall planting, if we have plenty of rain; but where the weather is dry, however, I would recommend waiting till spring.

A. I. ROOT, Medina, O.

DADANT'S FOUNDATION FACTORY, WHOLESALE AND RETAIL. See advertisement in another column

NEARLY THIRTY TONS
—OF—
DADANT'S FOUNDATION
SOLD IN 1887.

It is kept for sale by Messrs. T. G. Newman & Son, Chicago, Ill.; C. F. Muth, Cincinnati, O.; Jas. Heddon, Dowagiac, Mich.; F. L. Dougherty, Indianapolis, Ind.; B. J. Miller & Co., Nappanee, Ind.; E. S. Armstrong, Jerseyville, Ill.; E. Kretchmer, Coburg, Iowa; P. L. Viallon, Bayou Goula, La., M. J. Dickason, Hiawatha, Kansas; J. W. Porter, Charlottesville, Albemarle Co., Va.; E. R. Newcomb, Pleasant Valley, Dutchess Co., N. Y.; D. A. Fuller, Cherry Valley, Ill.; J. B. Mason & Sons, Mechanic Falls, Maine; G. L. Tinker, New Philadelphia, O., Jos. Nysewander, Des Moines, Ia.; C. H. Green, Waukesha, Wis.; G. B. Lewis & Co., Watertown, Wis.; J. Mattoon, and W. J. Stratton, Atwater, O., Oliver Foster, Mt. Vernon, Iowa; C. Hertel, Freeburg, Ill.; Geo. E. Hilton, Fremont, Mich.; J. M. Clark & Co., 1409 15th St., Denver, Colo.; Goodell & Woodworth Mfg. Co., Rock Falls, Ill.; J. A. Roberts, Edgar, Neb., E. L. Goold & Co., Brantford, Ontario, Canada; J. N. Heater, Columbus, Neb., and numerous other dealers.

Write for *free* samples, and price list of bee supplies. We *guarantee every inch* of our foundation *equal to sample in every respect*. Every one who buys it is pleased with it.

CHAS. DADANT & SON,
3btfd **Hamilton, Hancock Co., Illinois**

☞In responding to this advertisement mention GLEANINGS.

BEES, Queens, Hives, Given Comb Foundation, Apiarian Supplies, German Carp, Small-fruit Plants. Send for catalogue free. **E. T. Flanagan**, Belleville, Ills. 1-24db.

MUTH'S
HONEY-EXTRACTOR

SQUARE GLASS HONEY-JARS,
TIN BUCKETS, BEE-HIVES,
HONEY-SECTIONS, &c., &c.
PERFECTION COLD-BLAST SMOKERS.

Apply to CHAS. F. MUTH & SON,
CINCINNATI, O.

P. S.—Send 10-cent stamp for "Practical Hints to Bee-Keepers." 1tfdb

☞In responding to this advertisement mention GLEANINGS.

A POSITIVE FACT.

QUEENS BY RETURN MAIL FROM THE OLD AND RELIABLE

KNICKERBOCKER BEE-FARM
(Established 1880).

Warranted, $1.00; tested, $2.00. Special rates on large orders. Circular free. 15-16-17d

GEO. H. KNICKERBOCKER,
Box 41. Pine Plains, Dutchess Co., N. Y.

CARNIOLAN QUEENS.

From the best honey strain, at prices to suit the times. Send for descriptive price list, giving honey-record, management, etc.

H. F. SHANNON.
16-17-18d *Box 56.* *Clarksburg, Ind.*

☞In responding to this advertisement mention GLEANINGS.

ITALIAN QUEENS.

Untested, 50 cts.; tested, $1.00. Untested, per dozen, $8.00. **I. GOOD,**
10tfdb **Sparta, White Co., Tenn.**

☞In responding to this advertisement mention GLEANINGS.

J. P. Caldwell, of San Marcos, Tex.

Pure Italian queens.	April.	May.	Jun. to Oct.
Select tested	$2 75	$2 25	$1 75
Tested	1 75	1 50	1 25
Untested	1 00	90	75
Six untested	5 00	4 40	3 75
Twelve untested	9 50	8 00	7 00

All queens will be shipped in cages which answer the double purpose of an introducing and shipping cage. Address J. P. CALDWELL, San Marcos, Tex.
7-18db Please mention GLEANINGS.

☞In responding to this advertisement mention GLEANINGS.

FOR SALE.—A 4-horse-power Engine and Boiler, nearly new; cost $200. Also 2 saw-tables, one with gang of 7 saws and one with rip and cut-off saws, with shafting and belting for the same. Will sell all for $150. W. S. WRIGHT,
17tfdb Battle Creek, Mich.

50 **Untested Italian Queens, 50c. each.**
M. ISBELL, NORWICH, N. Y. 17-18d

J. P. Moore

Would say to his friends and patrons that he still has several choice tested Italian queens for sale at $1.00 each. **Warranted queens** 80 cts. each; 3 for $2 25. Safe arrival and satisfaction guaranteed.
17 J. P. MOORE, Morgan, Pendleton Co., Ky.

☞In responding to this advertisement mention GLEANINGS.

One BUYERS' GUIDE is issued March and Sept., each year. It is an encyclopedia of useful information for all who purchase the luxuries or the necessities of life. We can clothe you and furnish you with all the necessary and unnecessary appliances to ride, walk, dance, sleep, eat, fish, hunt, work, go to church, or stay at home, and in various sizes, styles and quantities. Just figure out what is required to do all these things **COMFORTABLY**, and you can make a fair estimate of the value of the BUYERS' GUIDE, which will be sent upon receipt of 10 cents to pay postage.

MONTGOMERY WARD & CO.
111-114 Michigan Avenue, Chicago, Ill.

☞In responding to this advertisement mention GLEANINGS.

J. F. Wood IS NOW PREPARED TO send promptly those beautiful Italian queens (every one warranted) that have given such universal satisfaction the past three years, at the low price of 75 cts. each; $4.25 for 6; $8.00 for 12. Ninety-eight per cent of all queens sold last season proved purely mated. J. F. WOOD,
13tfdb *Mention Gleanings.* North Prescott, Mass.

FOLDING BOXES.

Enclose your COMB HONEY in our Cartons. Prices Reduced for 1888. Sample 5c. 20 page Catalogue of Glass Jars, Honey Labels, etc., FREE. Send for it. Address
A. O. CRAWFORD, S. Weymouth, Mass. 10 20db.

☞In responding to this advertisement mention GLEANINGS.

CARNIOLAN · QUEENS.

Gentlest bees known; not surpassed as workers, even by the wicked races.

Imported queens. "A" grade, direct from my apiary, $6.00. From Austria, $5.00.

Never saw foul brood. Ask on postal card for circular.

S. W. MORRISON, M. D.,
Oxford, Chester Co., Pa.

☞In responding to this advertisement mention GLEANINGS.

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CONVENTION NOTICES.

The Fayette Co., O., Bee-Keepers' meeting will be held at the residence of D. Waters, Sept. 28, 1888, at 10 o'clock, A.M. A good attendance is desired.
Bloomingburg, O. S. R. MORRIS, Sec.

The Sixth Annual Meeting and basket picnic of the Progressive Bee-Keepers' Association will be held on Wednesday, Sept. 26th, at the residence of Mr. W. S. Wait, in Newbury, Geauga Co., Ohio. All interested are invited to be present.
Bedford, O. MISS DEMA BENNET, Sec.

The Ohio State Bee-keepers' Association will hold its 6th annual meeting in joint convention with the North American Bee-keepers' Society, at Columbus, Oct 3, 4, and 5. A special business session of the Ohio Bee-keepers' Association will be held Oct. 4, to elect officers for the coming year, and for the transaction of other business. This business meeting will not interfere with the regular programme of the national convention of the same day. FRANK A. EATON, Sec.

NORTH AMERICAN CONVENTION.

The North American Bee-Keepers' Society will hold its annual meeting Oct. 3, 4, and 5, in the Represenatives' Hall, at the Capitol, in Columbus, Ohio. The passenger-traffic associations will grant reduced rates only when 100 persons are present holding railroad certificates. Owing to the short honey crop, it is feared that a sufficient number of persons will not be present holding certificates, and that an attempt on the part of the society to avail itself of the reduced rates offered by the passenger-traffic associations will result only in disappointment; hence it has been decided that the only course open will be to allow each man to shift for himself—to either take advantage of such excursion rates as may be available in his vicinity, buy round-trip tickets, or something of the sort.
W. Z. HUTCHINSON,
Sec. N. A. B. K. S.

Wants or Exchange Department.

Notices will be inserted under this head at one-half our usual rates. All ad's intended for this department must not exceed 5 lines, and you must SAY you want your ad. in this department, or we will not be responsible for any error. You can have the notice as many lines as you please; but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale can not be inserted under this head. For such our regular rates of 20 cts. a line will be charged, and they will be put with the regular advertisements.

WANTED.—To exchange full colonies of bees, $5.00, for poultry, seeds, tools, honey-boards, fdn., sections, F. P. saw, or any thing I can use on farm or apiary. W. H. LAWS, Lavaca, Ark.
16tfdb Ex. Office, Ft. Smith.

WANTED.—To exchange for extracted honey, a 10 h. p. horizontal engine, worth $200. I will give somebody a rare bargain. Speak quick.
15tfdb C. H. SMITH, Pittsfield, Mass.

WANTED.—To exchange dried fruit, peaches and apples, for good clover and basswood honey. Will give 1 lb. of peaches for 1 lb. of honey.
18tfdb T. A. GUNN, Tullahoma, Tenn.

WANTED.— An experienced bee - man to take charge of my apiary, two hundred colonies. Write for particulars. J. W. PARK,
18d Columbia, Brazoria Co., Tex.

WANTED. — To exchange P. R. or Langshan chicks, healthy and pure, for something useful.
18d MRS. C. E. HATCH, Kentland, Newton Co., Ind.

WANTED.—To exchange honey, supplies, Italian bees of Doolittle strain, for Barnes saw, mortising or tenoning machine, or offers. 18d
Lock Box 888, Shenandoah, Iowa.

WANTED. —To correspond with some one with view of finding a good bee location. 18d
WILL. T. ZINK, Junction City, Greene Co., Mo.

WANTED.—To exchange Cuthbert and Tyler berry-plants for beeswax or female parrots, double-barrel shot-gun, breech-loading, 12 gauge.
17-18d M. ISBELL, Norwich, N. Y.

DO you wish to exchange extracted honey for supplies? If so, write at once to
15tfdb CHAS. H. SMITH, Pittsfield, Mass.

WANTED.—To exchange choice Italian queens for comb or extracted honey. Correspondence solicited. JAMES F. WOOD,
13tfdb North Prescott, Mass.

WANTED.—To exchange Italian bees for a first-class 48-inch bicycle or a foot-power turning-lathe. Engine lathe preferred. 14tfdb
D. S. BASSETT, Farnumsville, Worcester Co., Mass.

WANTED.—An honest and capable young man who has had some practical experience in the bee business, that would like to buy a half-interest in an established apiary of 250 hives of bees, and bee-house, cellar, extractors, etc. I have also probably 400 hives of empty comb, 200 of them extra thick combs, that have been used in extracting, which are valuable to those who know their worth. Will sell a half-interest in all at a very low price to the right kind of a man. My having a large hotel (summer resort) in the Catskill Mountains, requiring much of my attention, is the reason for my wishing to sell an interest.
16-17-18 O. R. COE, Windham, N. Y.

Black and Hybrid Queens For Sale.

For the benefit of friends who have black or hybrid queens which they want to dispose of, we will insert notices free of charge, as below. We do this because there is hardly value enough to these queens to pay for buying them up and keeping them in stock; and yet it is oftentimes quite an accommodation to those who can not afford higher-priced ones.

I have 5 mismated Italian queens which will produce no black bees, which I will send to any address for 30 cts. each; satisfaction guaranteed.
FRED. LEININGER, Douglas, O.

20 hybrid queens, 30 cents each.
M. ISBELL, Norwich, N. Y.

Hybrid queens for sale, 35c each, or 3 for $1.00.
GEO. L. FERRIS, Prairie Farm Apiary,
Five Corners, N. Y.

TWO-STORY BRICK RESIDENCE,

4 lots, Ice-House, Stable, Bee-House, etc., etc., and, if desired, 8 acres of land within 2 blocks. This is good property. Belongs to heirs; must be sold, and will be sold cheap. H. L. GRAHAM,
17-18d Grandview, Iowa.

FOR SALE.
THE NORTHSHADE APIARY.

ONE OF THE BEST EQUIPPED APIARIES IN MICHIGAN.

Honey resources unsurpassed. White clover, basswood, tulip, and fall bloom in abundance. Over 200 colonies of Italian bees, healthy and strong, with abundance of good winter stores. Large quantity supplies on hand; all first class. 30 acres good land, good orchard and small fruits, dwelling-house, new storeroom and steam foundation works, good water-power sawmill, 24-inch planer, and all necessary machinery for the manufacture of bee-hives and section-boxes; all in first-class running order. Plenty of custom work for the winter months. Price $3500, with time on a part if desired. This is a rare chance for some one, as it is a double paying property. Title perfect. Good reason for selling. For full particulars apply to

O. H. TOWNSEND,
Alamo, Kalamazoo Co., Mich.

DADANT'S FOUNDATION FACTORY, WHOLESALE AND RETAIL. See advertisement in another column

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APIARIAN SUPPLIES CHEAP.

BASSWOOD V-GROOVE SECTIONS, $2.75 to $3.75 PER M. SHIPPING-CASES VERY LOW.
SEND FOR PRICES.

GOODELL & WOODWORTH MFG. CO.,
3tfdb **ROCK FALLS, ILLINOIS.**

FOR SALE.—A 3-horse-power Engine and Boiler, nearly new; cost $200. Also 2 saw-tables, one with gang of 7 saws and one with rip and cut-off saws, with shafting and belting for the same. Will sell all for $150.

W. S. WRIGHT,
17tfdb Battle Creek, Mich.

A HOME IN THE SUNNY SOUTH.

350 acres, 1½ miles from Cuthbert, the city of schools and churches. Land comparatively level. Watered by never-failing springs and a creek; 2 carp-ponds; 29 stands of bees; 4 new 2-room tenant-houses, with well at each. Seven varieties of fruit. Dwelling has four plastered rooms. No malaria. Titles perfect. Price $4000; one-half cash, balance 8 per cent.

L. A. DUGGAN,
14-16-18d Cuthbert, Randolph Co., Ga.

☞In responding to this advertisement mention GLEANINGS.

WANTED.—To purchase one to three thousand pounds choice white-clover honey in one-pound sections. Crates to average about 20 pounds each.

J. T. CARSON, 18-21db
325 W. Main St., Louisville, Ky.

MELISSA, OR BEE-BALM.

Can furnish strictly pure clean seed at 50 cts. per ounce. Send for 10 cts. worth and try it. Now is the time to plant. Address 18-19d

G. W. BALDWIN, Forest City, Holt Co., Mo.

MUTH'S
HONEY-EXTRACTOR,

SQUARE GLASS HONEY-JARS,
TIN BUCKETS, BEE-HIVES,
HONEY-SECTIONS, &c., &c.
PERFECTION COLD-BLAST SMOKERS.

Apply to CHAS. F. MUTH & SON,
CINCINNATI, O.

P. S.—Send 10-cent stamp for "Practical Hints to Bee-Keepers." 1tfdb

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DADANT'S FOUNDATION FACTORY, Wholesale and retail. See advertisement in another column. 3btfd

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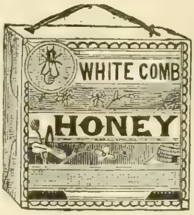
PASTEBOARD BOXES

FOR ONE-POUND SECTIONS OF

COMB HONEY.



THIS box has a bit of "red tape" attached to it to carry it by. It makes a safe package for a single section of honey for the consumer to carry, or it can be packed in a trunk, if he wants. It can be opened in an instant. The price of the box is 2 cts. each, set up; in the flat, 15 cts. for 10; package of 25, 25 cts.; 75 cts. per 100; or $6.00 per 1000; 10,000, $55.00; without the tape handle, deduct 10 cts. per 100. If wanted by mail, add $1.00 per hundred for postage. Colored lithograph labels for putting on the sides, two kinds, one for each side, $3.00 per 1000. A package of 25, labeled on both sides, as above, 45 cts. By mail, 30 cts. more. They can be sold, labeled on one side or both sides, of course. We have only one size in stock, for Simplicity sections. Sample by mail, with a label on each side, 5 cts. If you want them shipped in the flat, labels already pasted on, the price will be ten cents per hundred for putting them on. We can print your name and address in a nice design right on one side of the box for 50 cts. per 100; $1.00 for 500, or $1 75 per 1000

Your name and address, and the kind of honey, may be printed on these labels, the same as other labels. The charge for so doing will be 30 cts. per 100; 250, 50 cts.; 500, 75 cts.; 1000, $1.00.

A. I. ROOT, Medina, Ohio.

BEES, Queens, Hives, Given Comb Foundation, Apiarian Supplies, German Carp, Small-fruit Plants. Send for catalogue free. **E. T. Flanagan,** Belleville, Ills. 1-24db.

BEES AT $1.50. 50 full swarms with queens, $1.50. If Simplicity hive and comb is wanted, add 10 cts. per comb and 50 cts. per hive.

F. H. McFARLAND, St. Albans, Vermont.

CIDER. HOW TO KEEP IT SWEET, AND OTHER POINTS ON CIDER FREE.
F. T. PALMER, Mianus, Conn. 18d

BEES and queens cheap. Tested queen, $1.25; untested, 75 cts. Send card for price list.

MISS A. M. TAYLOR,
15tfdb Mulberry Grove, Bond Co., Ill. Box 77.

SPECIAL NOTICES.

STURWOLD SHOW-CASE FOR $4.00.

You will save the price of one of these cases many times over in one season, if placed in a conspicuous place in your grocery, and filled with choice honey. You will work up a handsome home market at good prices. Try it. Price $4.00. Your name and address put upon the front glass for 50 cts. extra.

REDUCTION IN THE PRICE OF SQUARE CANS FOR HONEY.

ON the inside cover page of this number you will find a list of popular packages for extracted honey, and among them the 60-lb. square cans. These are growing more and more in favor as a convenient, cheap, and safe package for shipping honey. We have decided to reduce the prices 10c per box of 2, and 5c per box of 1. The revised prices will be as follows:

1 box of two cans - - -	$ 80	1 box of one can - - -	$ 45
10 " " " " - - - -	7 00	10 " " " " - - - -	4 00
50 " " " " - - - -	32 50	50 " " " " - - - -	19 00

These prices, you will notice, are lower than those in the ad. referred to. We can ship either from here or St. Louis at these prices, and we hope soon to have arrangements made for shipping from New York also at these prices.

THE BEST BEE-FEEDER.

Dr. Miller's feeders, made large enough to feed 20 lbs. at once, if you choose. Best feeders out. Just the size of the T super, and we furnish them in flat at same price, 13 cts. each; $1.10 for 10; $10.00 per 100. Nailed, and joints painted, double this price.

KIND WORDS FROM OUR CUSTOMERS.

The goods I ordered of you arrived in good order. The ink-powders are splendid, and the scales are regular "Jim Dandies." You may expect another order from me soon. SAMMIE VINSON.
Sonora, Ky., Aug. 6, 1888.

THAT SMOKER.

The bill of goods ordered of you has arrived, and all were in good condition. That smoker made my hive of hybrid bees (or, as the boys call them, "wild bees"), keep quiet. I am satisfied with that order, and will try you again. J. S. EVANS.
Nashville, Tenn., July 19, 1888.

STRAWBERRY-PLANTS LONG DISTANCES BY MAIL.

Mr. Root:—The strawberry-plants came this morning, in good condition. They were not at all wilted, and the moss around them was quite moist on arrival. Your method of packing could not be better.
HENRY C. HOLDEN.
West Concord, N. H., Sept. 15, 1888.

I am partial to your magazine, having discarded all others I have tried. You may consider me a subscriber as long as GLEANINGS is in circulation, if I continue a bee-keeper. G. J. HALL.
Rumney, N. H., July 24, 1888.

[Friend H., I am glad you like our journal, but I am rather sorry to hear you say that you have discarded others. GLEANINGS is only one among many others equally valuable.]

QUEEN-EXCLUDING HONEY-BOARDS, QUEEN-EXCLUDING.

I have tried the 20 wood-zinc honey-boards purchased of you, and have taken 1200 1-lb. sections, and in only two cases were the burr-combs attached to the sections, and I think those were caused by want of room, as the cases were full. They are queen-excluding every time. S. C. CORWIN.
Sarasota, Fla., July 6, 1888.

Friend Root, I am more than pleased with your clean-faced journal. I have received four copies, which well pay me for my $1.00, even if I were to get no more. The good reading in them will pay anybody, whether he is a bee-keeper or not. You are probably annoyed with thousands of such as this, which fill your waste-basket. M. T. MORGAN.
Waynesburg, Ky., Apr. 21, 1888.

[Not at all, friend M., when they contain so much of encouragement.]

GLEANINGS AND THE TOBACCO COLUMN.

Your kindness received. Many thanks. I will show my appreciation for your prompt reply by inclosing cash for GLEANINGS. I must say it is the most interesting document I've read on that subject. I heartily indorse your Tobacco Column. All a man would need to do, to get disgusted at the uncivilized habit, would be to be a coach-cleaner, as I am.
ADAM GROGGER.
Solomon City, Kan., May 21, 1888.

THOROUGHLY PLEASED; THE SIMPLICITY WELL PROPORTIONED.

I am thoroughly pleased with the hives sent. I was astonished to find every thing so complete—nothing missing, every thing in place. They are nicely nailed up, thoroughly painted white, outside, 3 coats; one coat inside. I am glad I adopted the Simplicity. The proportions seem so nicely adjusted that every part can be snugly packed without loss of space. It is a comfort to go to a hive and lift up a metal-cornered frame so easily and quietly. You may remember I got all metal corners.
Thornton, Ind., June 13, 1888. J. A. UTTER.

GLEANINGS SKETCHES.

I think those sketches of Mrs. Chaddock carrying the bees around are good. I think you must have a real artist in your employ, to make them so good from my poor pencil-scratches. M. B. CHADDOCK.
Vermont, Ill., July 14, 1888.

[Yes, and we employ several of them, off and on. Our engraving, however, is all done in the cities.]

THE YOUNG AMERICA LAWN-MOWER.

I bought a lawn-mower of you some time ago, and I am glad to say it is the easiest-running and nicest-cutting mower I ever saw. All in need of a lawn-mower should go to A. I. Root.
Longley, O., Aug. 8, 1888. C. F. COE.

[Yes, friend C., you are right. The mower is one of the easiest-running ever made.]

WAITING TO CATCH A WHOPPER.

I send you one dollar for GLEANINGS another year. You need not stop sending it till I order it stopped. We do not get any honey from our bees to pay, but, as in fishing, we keep on hoping, in time, to catch a whopper. The most of the bees here must be fed to survive the winter. Some hives have not one pound of honey in them. I think I never saw it so dry before.
BYRON BENTON.
Bronson, Mich., Sept. 5, 1888.

HOW THE SIMPLICITY HIVE PLEASES.

Wife and I had some visitors a few days since. I had put up a Sim. hive complete, in a room upstairs set apart for that purpose. I invited our callers upstairs to look at my hives, fresh from Ohio. I took off the top board. Visitors said, "Well! covered with tin, and painted; that is good. What is that oil cloth for?" I then showed them the sections, and how to take them out; removed the upper story, and lifted the top case of sections—explaining to them as I progressed. I took off the lower one, and told them that I now had my crop of honey in the fall, and we would now prepare our bees for the winter. I told them of the chaff cushion and side cushions, and replaced the top. "Really," said they, "that is just splendid." I then took them through the lower story of the hive, and explained it as best I could. They were surprised and amazed; and, as we were turning away, a golden-haired school miss remarked, "I believe I could make honey myself if I could have as nice a house as that is to work in." J. M. KANE.
Osawatomie, Kan.

SEND THE BLESSED TIDINGS ALL THE WORLD AROUND.

Bro. Root:—I am very much gratified in perusing your articles, Our Homes, etc., wherein you say something for the Master. Those articles, as you present them in a practical manner through the pages of your journal, are like apples of gold in pictures of silver. They will find an abode in many a heart, and be the cause of untold good. "My word shall not return unto me void," will be demonstrated as the result of your efforts for good. You may little think of the great amount of good you are doing by dropping a few words for our Master, while engaged in your business. Many will come forward in "that day," acknowledging you as the instrument in diffusing some spiritual truth that turned their course heavenward, adding stars to your crown. Too often we neglect, while in our hurry through life, to testify for Christ, or drop a kind word to the weary, or offer counsel to some wayward one. How thankful you should be that you have been formed to do some good for others, and act a holy part in the reformation of mankind! around this employment hovers a true dignity, gathers a real splender. Riches and fame are not for ever, and the crown will not endure to all generations; but the glory of doing a kind and lovely act will follow us beyond the sepulcher; and when wealth has crumbled around our tomb, and fame has died away along the shores of time, the solemn employments of this life will rise up to gladden the heart and throw a charm over the pages of imperishable memory. In the language of that once sweet Christian singer, P. P. Bliss,—

> "Send the blessed tidings all the world around;
> Spread the joyful news wherever man is found."

Loysburg, Pa. J. S. BIDDLE.

HONEY COLUMN.

CITY MARKETS.

NEW YORK.—*Honey.*—Fancy white, 17@18; fair white, 15@16; fancy white, 2-lbs., 13@14. Fair white, 11@12. Extracted white, 7½@8.

THURBER, WHYLAND & CO.,
Sept. 5. New York.

ST. LOUIS.—*Honey.*—We have to report a quiet market. We quote strained and extracted, in barrels, 4½@5½, in cans, 7½@9. Comb, 13@15.
Beeswax, prime, 21.

Sept. 10. D. G. TUTT GROCER CO.,
St. Louis, Mo.

NEW YORK.—*Honey.*—New crop of white honey is arriving and we quote as follows: Fancy white, 1-lb., 17@18; off grades, 15@16; fancy white, 2-lbs. 13@14; off grades, 12. Extracted white, 7½@8. Demand good. *Beeswax.*—23@23½.

Sept. 5. HILDRETH BROS. & SEGELKEN,
28 & 20 West Broadway, New York.

CHICAGO.—*Honey.*—New crop is bringing 18c per pound when in choice condition, and one-pound sections of white honey. The offerings as yet are light but the demand is also small. Extracted, 7@8. *Beeswax*, about 22c for yellow. R. A. BURNETT,
Sept. 11. Chicago, Ill.

CINCINNATI.—*Honey.*—There is a very slow demand for all kinds of honey, and prices are nominal. We quote 4¼@8c for extracted honey on arrival, and 12@16 for best comb honey in the jobbing way. *Beeswax* is in good demand, and brings 20@22 for good to choice yellow.

CHAS. F. MUTH & SON,
Sept. 12. Cincinnati, Ohio.

BOSTON.—*Honey.*—We have received several lots of new honey from Vermont, and it is of very good quality. We are selling it in a small way in 1-lb. combs at 18c. No 2-lb. combs received as yet. Latest advises from Vermont, short crop.

Sept. 10. BLAKE & RIPLEY,
57 Chatham St., Boston, Mass.

ST. LOUIS.—*Honey.*—We quote extracted honey in better demand, and, just at present, a little scarce; choice southern, in bbls., 5@5½; white clover, 5½@6; cans, 6@8, as to quality. Comb honey, choice white clover, 14@15; fair, 12@13.
Beeswax, 21. W. B. WESTCOTT & CO.,
Sept. 10. St. Louis, Mo.

ALBANY.—*Honey.*—Market improving as weather grows cooler. Stock light, and good demand.

White comb, - - 15@16. Mixed, - - 14@15.
Dark " - - - 12@13. " - - - 11@12.
White Extracted - 7@ 8. " - - 6@ 7.

Consignments solicited. H. R. WRIGHT.
Sept. 15. Albany, N. Y.

NEW YORK.—*Honey.*—We quote:

Fancy white one-pound comb 17½@18 cents.
" " two " " 14½@15½ "
Fair " one " " 14½@15½ "
" " two " " 11 @12 "
Extracted, fancy white-clover 7½@ 8½ "

Sept. 13. F. G. STROHMEYER & CO.,
122 Water St., New York.

FOR SALE.—4000 pounds of light comb honey in 1-pound sections, 24 or 48 pound cases. Will take 16c. per pound, F. O. B. cars at Dixon. Also 1000 lbs. very fine light extracted honey in 60-lb. cans, at 10c.
EZRA BAER, Dixon, Ill.

Extracted honey in 5-gallon tin cans, screw top and crated. Free on cars here at 10c. per lb.; 60 lbs. in can. M. ISBELL, Norwich, N. Y.

NORTHWESTERN ARKANSAS — The Apple-Orchard of America.
80-acre farm; 3 good wells; 40 acres in tame grass; 800 apple-trees, and a number of peach-trees; good dwelling-house of 8 rooms. Only 3 miles from town. Elevation 1500 ft. Owner is leaving the country.
Address COL. W. BEERS.
17-18d Fayetteville, Washington Co., Ark.

HONEY.

We advise bee-keepers not to sell before getting our high prices. State quality, quantity, and style of packages; send samples of extracted, with sender's name marked on same.

F. G. STROHMEYER & CO.,
18-21db **122 Water St., New York.**
☞In responding to this advertisement mention GLEANINGS.

Are You Going to the Fair?

If so, read the BEE-KEEPERS' REVIEW for August. It is especially devoted to Apiarian Exhibitions at Fairs, and is contributed to by H. D. Cutting, Prof. A. J. Cook, James Heddon, M. M. Baldridge, M. H. Hunt, R. F. Holterman, Dr. A. B. Mason, and J. H. Martin.
The Sept. No. will be devoted to "Food and its Relation to the Wintering of Bees." Price of the REVIEW, 50 cts. a year. Samples free. Back numbers can be furnished.

THE PRODUCTION OF COMB HONEY.
A neat little book of 45 pages; price 25 cts. The REVIEW and this book for 65 cts. Stamps taken, either U. S. or Canadian. Address
W. Z. HUTCHINSON,
613 Wood St. **Flint, Mich.**
☞In responding to this advertisement mention GLEANINGS.

J. P. Caldwell, of San Marcos, Tex.

Pure Italian queens.	April.	May.	Jun. to Oct.
Select tested	$2 75	$2 25	$1 75
Tested	1 75	1 50	1 25
Untested	1 00	90	75
Six untested	5 00	4 40	3 75
Twelve untested	9 50	8 00	7 00

All queens will be shipped in cages which answer the double purpose of an introducing and shipping cage. Address J. P. CALDWELL, San Marcos, Tex.
7-18db Please mention GLEANINGS.
☞In responding to this advertisement mention GLEANINGS.

The BUYERS' GUIDE is issued March and Sept., each year. It is an encyclopedia of useful information for all who purchase the luxuries or the necessities of life. We can clothe you and furnish you with all the necessary and unnecessary appliances to ride, walk, dance, sleep, eat, fish, hunt, work, go to church, or stay at home, and in various sizes, styles and quantities. Just figure out what is required to do all these things **COMFORTABLY**, and you can make a fair estimate of the value of the BUYERS' GUIDE, which will be sent upon receipt of 10 cents to pay postage,
MONTGOMERY WARD & CO.
111-114 Michigan Avenue, Chicago, Ill.
☞In responding to this advertisement mention GLEANINGS.

J. C. Frisbee, Suffolk, Va.,
Wants Your Address for his Order-Blank for Your Order, to be Delivered Next Spring for
BEES, QUEENS, HIVES,
AND ALL SUPPLIES, CHEAP.
Beautiful card in colors for bee-keepers, free.
Address as above. 16-15db
☞In responding to this advertisement mention GLEANINGS.

DADANT'S FOUNDATION FACTORY, WHOLESALE AND RETAIL. See advertisement in another column. 3btfd

GLEANINGS IN BEE CULTURE.

DEVOTED TO BEES, HONEY, & HOME INTERESTS.

Vol. XVI. SEPT. 15, 1888. No. 18.

TERMS: $1.00 PER ANNUM, IN ADVANCE; 2 Copies for $1.90; 3 for $2.75; 5 for $4.00; 10 or more, 75 cts. each. Single number, 5 cts. Additions to clubs may be made at club rates. Above are all to be sent to ONE POSTOFFICE.

Established in 1873.
PUBLISHED SEMI-MONTHLY BY
A. I. ROOT, MEDINA, OHIO.

Clubs to different postoffices, NOT LESS than 90 cts. each. Sent postpaid, in the U. S. and Canadas. To all other countries of the Universal Postal Union, 18 cts. per year extra. To all countries NOT of the U. P. U., 42 cts. per year extra.

THE NEXT NATIONAL CONVENTION.

PARTICULARS FROM THE PRESIDENT IN REGARD TO RAILROAD RATES, BOARDING AND LODGING, PLACE OF MEETING, ETC.

FOR some time past I have been corresponding with the four traffic associations that embrace the railroads of the U. S. and Canada, to secure reduced rates for those attending the meeting of the North American Bee-Keepers' Society, to be held here on the 3d, 4th, and 5th of next month, and have just received the last reply. All the roads will return those in attendance at one-third fare, if they have paid full regular rates in going to the convention, and hold a certificate to that effect. But as three of the passenger associations require that 100 tickets be bought and signed by the Secretary of the N. A. B. K. Soc'y, in order to have reduced rates, I do not think it advisable to do any thing further about the matter.

Most of those who will attend will be within the reach of reduced rates to the Ohio Centennial Exposition. Let each one intending to attend the convention inquire at his railroad station about rates to the centennial; and if there is no reduction from that station, buy a round-trip ticket to the nearest large town or city, and there buy a round-trip ticket to the centennial. Most if not all such tickets will have a ticket attached that will give one admission to the centennial grounds. If the holder does not care to use it, it can be disposed of for what it cost. I don't know the rates from New York, Toronto, St. Louis, Chicago, Louisville, etc., but excursions are coming every week. The fare from Toledo, O., to Columbus (124 miles) is and will be $2.50, round trip.

No reduced rates for board and lodging have been made as yet; but good meals can be had for 25 cts., and lodging for from 25 cts. up. It has been customary to get reduced rates at what are called first-class hotels, and the rates are frequently such that only a few take advantage of them, the remainder preferring to secure equally good accommodations at other hotels and boarding-houses at cheaper rates, so that the social part of the convention is divided.

The convention will meet in the State House, in the hall of the House of Representatives, at 11 o'clock A. M., Oct. 3, and I shall try to be prepared to refer all delegates to good lodging and boarding places, at rates that will best suit their pocketbooks, and then all can make the place of meeting "headquarters" for the social part. The Secretary has charge of the programme.

A. B. MASON, Pres't N. A. B. K. Soc'y.

Centennial Grounds, Columbus, O., Sept. 8, 1888.

I will add to the above, that sometimes it is profitable to buy excursion tickets where you are going only one way. One of our men who runs the machinery for making section boxes wanted to go to Columbus Monday morning, but did not intend to return with the excursion; he therefore paid $2.55 for an excursion ticket, which was considerably less than the fare one way; and when he arrived in Columbus he easily sold the return part of the ticket for one dollar. With the great attractions that are to be found on the grounds, aside from bee culture, it seems to us it will pay most of the bee-men of Ohio, if not adjoining States, to be prepared to be on hand during the three days mentioned above.

THE WALKING STICK.

MIMICKRY IN NATURE.

MR. F. A. GEMMILL, Stratford, Ontario, sends an insect with the question:

"*Dear Professor:*—What is it? I found it in the bush."

Take a gray stick, put four long stick-like legs on it, append two long antennæ, some eyes and jaws, and you have his honor, the walking stick; or, if you wish a more dignified name, here you have it: *Diapheromera femorata*. The walking sticks live in the forest, and eat vegetation. They illustrate mimickry excellently well. In childhood they are green, and always rest on the green leaves. With age they become gray, when they are found adhering to the twigs, though they look so like the twigs on which they rest that usually they are not found. These insects drop their large eggs from trees in autumn, and are so thick at times that the falling of the eggs reminds one of the patter of raindrops on the dry leaves. The egg has a curious lid which is pushed open by the young when it is ready to slip out into the world.

This walking stick belongs to the same order as the "praying mantis," which it resembles somewhat. The mantis I have illustrated and described in Bee-Keeper's Guide, as it is an enemy of our bees. A. J. COOK.

Agricultural College, Mich.

A LITTLE GROWL.

ANSWERING QUESTIONS OVER AND OVER AGAIN, THAT HAVE ALREADY BEEN ANSWERED THROUGH JOURNALS AND TEXT-BOOKS.

BEING tired and somewhat worn out to-day, I feel like talking a little plainly if not crossly to those of our brethren to whom it may apply. I am not always cross and fretful, for even the worst of us are said to have our good points, so I may not suppose I am an exception to the general rule; but a strain upon me, along the line of answering questions for years, has at last decided me to speak out what is in my heart, about something which I think ought not so to be. So far, I believe, I have answered every question ever asked me, no matter how many times I had answered it privately or publicly before, nor whether I considered it of importance or not; neither have I refused to do the best I could for the asker, even if he did forget to put in any stamps for reply, and mixed the questions up with a host of other matter, so that I had to read over from one to four, and sometimes ten sheets of closely written matter to pick out these questions. Now, my growl is to be in the shape of a little instruction to those who ask questions of those who correspond for GLEANINGS and the other bee-papers, to see if a different state of affairs can not be brought about. In the first place, dear reader, try to remember what you read, and have some means of referring to the articles you wish, or think you *may* wish to know more about in the future—a reference-book, such as I have described in GLEANINGS, being as convenient as any thing I know of for this purpose, by the use of which I can turn to any article written during the last five years which I thought might be of use to me. By this means you can find the most of what you want to know in a moment or two, instead of writing a long letter to some one, consuming your time and bothering the one you write to.

Again, an article on any subject partly or wholly exhausts the subject on which it is written, while at best you can expect to get only very short replies to your questions when answered privately. I have had questions enough asked in one letter, which, if answered as fully as I write an article for these pages, would amount to more than all I write for GLEANINGS in one year; yet the asker wished me to answer every question explicitly and plainly. Secondly, if you are the one to be benefited, don't ask the "benefiter" to pay the expense of benefiting you; or, in other words, if you are to be benefited, don't fail to put in postage-stamps enough to make good the actual outlay that the answerer must be to by way of postage and stationery. This may seem to be a small matter to you; but when your letter, and twenty others, reach some tired person on a sultry evening, all containing no stamps, and he has to sit up long after the family are in bed, trying to please you by answering them, he will be more of a saint than most of us are if he does not feel a little ugly when he comes to stamp all of those envelopes which he has furnished, at the midnight hour. Is it not enough that he spends his time for you—time when nature requires that he be in bed—without having to foot the bill of the whole thing? Keeping a little track of this matter for the past five years, I find that, on an average, about one in five put in a stamp for a reply, while one out of fifty will put in two stamps, with an exceptional one in about 200 who will put in 10 to 25 cents. Nearly all of these questions tell of how much good the writer's articles have done them, which, of course, pleases the one receiving such letters; for who does not like to know that they are of some use in the world? But this will hardly pay the bill if it happens to come at a time when the last sixpence has been used to pay postage on somebody's letter before it; and if you have received benefit free from the writer before, there is on you a special obligation to make good to him the postage on the benefit you now expect to receive.

What has compelled me to write on this postage matter is, that of late I have received several letters asking questions, with no stamp inclosed, nor any thing of the kind, asking me not to reply by postal card, for, said they, we do not wish the instructions given us read by the postmaster or others about us. This "riled" me, for such selfishness is in no way excusable.

Thirdly, there is one way of asking questions which I am always pleased to reply to. Bearing in mind the point of asking no question that you can readily find printed information about, and inclosing postage for the reply, put your questions on a separate sheet of paper, numbering them and leaving space immediately under each for the reply, the space being governed by the length of the reply you think will be necessary to be given. In this way you have your question and reply all together, which is much more convenient for you, and saves the writer from writing out your question, and answering it besides. Many questions can be just as effectually answered by yes or no, yet the answers to such, without the questions, would be of no use to any one. When thus sent, letters explaining the circumstances are gladly read, answers cheerfully appended to each question, and the sheet returned to the writer.

While growling, I wish to speak of another matter, which is about ordering queens. If you can not take the advertiser's prices given in the bee-papers, sending the money and waiting his time, send for his circular before ordering, to see if you can come to his terms of sale, as all advertisers of queens advertise circulars, I believe. If you can not conform to the rules of his circular, try some one else whose terms are compatible with your wants. Some things the past season have been very annoying, the following instance being given to show what I mean. A party orders a queen, but puts in no money, saying that, if the queen can not be sent by return mail, he wants the order sent to another party (he naming them), no stamp being inclosed for sending the order as requested. On the corner of the sheet, reference is given to a bank, but we have no time to write the bank if we send the queen by return mail; besides, we say in our circular, "Terms cash," so we write we can not send the queen without the cash. The result is a terrible blowing-up, telling us how much we have injured him, threatening to do all he can to banish us from the business, saying he does not pay for any thing till he sees it, and asking why we did not forward the order to the party named, if we could not fill it. I will say no more. Brethren, let us do as we would be done by. G. M. DOOLITTLE.

Borodino, N. Y.

Friend D., your suggestions are excellent. I would, however, bid you be not weary in well doing. Perhaps one reason why you get so many questions is because people have learned by years of experience that Bro. Doolittle is very prompt in his correspondence. He answers everybody, reasonable or unreasonable, in some shape or other, almost by return mail. Let me suggest, that those who ask these questions that have been answered so many times, very often never see a bee-book nor a bee-journal, and they have to get started some way or other. There is one point you touch on that has given us a good deal of trouble. A great many people we never heard of, and of whom we can find no record, order goods without saying a word about pay at all, and seem surprised that they do not get them by return mail. A better class have thought enough to give us reference. But these good people a good many times also ask for goods by return mail. Now, reference is a good thing, but it is not all-sufficient. A few months ago a firm out west corresponded considerably about buying toward a thousand dollars' worth of maple sugar and syrup. Finally they gave us an order. It all looked business-like and straight, and they gave reference in their order to a well-known firm of excellent standing. We were almost on the point of sending the goods, as they were in a great hurry for immediate shipment. We finally decided to ask this firm they referred to, what they knew about the other firm. To my great surprise, the reply came that they had just started in business, had little or no means, and that their past record was by no means first class. Now, I will tell you how to get goods by the first train, even if you have not got the money just then by you. Take your letter to your postmaster, station agent, or banker, and ask him to please write you a brief recommend, signing his name to it. If this is too much trouble, you certainly have no right to call names, and write abusively to the man who refuses to trust you. The records of our ledgers show pretty unmistakably that the man who takes offense because you refuse to trust him is not worthy of trust, and he is seldom worthy of being considered a gentleman. In writing to a business establishment that has every arrangement for answering questions in regard to business, it is not always necessary to inclose a stamp; but the person who would write to friend Doolittle, asking him questions in regard to bee culture, without the very small courtesy of a stamp, or, better still, a stamped envelope, hardly deserves a prompt answer.

A CORRECTION.

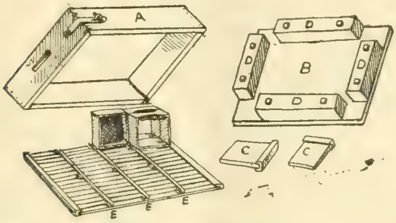
POUDER'S OPEN-SIDE SECTION NOT A NEW THING; ADJUSTABLE SIDE CASES PREFERRED.

FRIEND ROOT:—My attention is called to an article in GLEANINGS, page 514, headed, "Another Open-side Section," in which the advantages and disadvantages of a so-called new style of side-entrance section are set forth at length. Now, friend Root, when I tell you that I have manufactured several hundred thousand of this style of sections in the last six years, and have shipped the same to many different States, I think you will agree with me that it is a mistake to call it a new style of section; and as I have sent you my circular year after year, containing a cut and description, and also samples of the same from time to time, I am not a little surprised that you speak of it as something new. I have used perhaps fifty thousand of these sections in my own apiaries, but without separators, and can recommend them as superior to the common style when supers without adjustable sides are used; but in localities where bee-glue is plentiful, and especially where a bee-space is not used above the sections, the side passages will often be more or less filled with glue. I have used the common style of side-opening sections to some extent in cases with adjustable side, and have no fault to find with them, except that the corner projections are apt to split off, and the side opening to be filled with glue where the sections meet the ends of the super.

There is still another style of side-opening section that suits me better than either of the above, made with a bottom entrance the whole length of the section, and with side passages not over one and a half inches wide, and with only three entrances instead of four, for the end tiers.

ANOTHER ADJUSTABLE SIDE SUPER.

In regard to supers, I wish to say that I can't understand how any intelligent, practical bee-keeper can find use for any other than those having adjustable sides, after having once tried both sorts. I will venture to give you an idea of the one that I prefer, out of many that I have used or seen. Two opposite corners are halved together and securely nailed. The other two, like Foster's, are mitered but not nailed, being joined by a sort of hinge clasp made of heavy hoop iron. A piece about six and a half or seven inches long, bent in the center to a right angle, and pierced close to one end with a $\frac{3}{16}$ hole, and at the other with a slot $\frac{3}{16}$ wide by ⅝ long, as shown in the cut at the corner of the super shell A.



BYRON WALKER'S ADJUSTABLE CASE, WITH CLAMPING ARRANGEMENT.

Two wire fence-staples, small size, complete the device. The one is used to hinge the clasp to one corner of the super, at the end pierced with a $\frac{3}{16}$ hole; the other is driven into the side of the super, in the right position to receive the slotted end of the clasp when hinged to the corresponding end. It should project about $\frac{7}{16}$ of an inch. A small gimlet is required in putting in these staples to avoid splitting. Seven-eighths-inch stuff is the right thickness for the super, in order to have the staples clinch nicely. When the clasp is put on right, there will be about $\frac{3}{32}$ of an inch play at the corner. A six-penny wire nail is used to secure the clasp when the crate is filled. The crate rests on a honey-board having a bee-space on its upper side. The sections are supported at the ends of the super in the usual way, but U tins are used instead of T tins—the U tins, by the way, resting upon the slats of the honey-board. As these U tins are kept in position by means of wire nails pressed between the rows of sections, the super can be readily reversed. By using one separator through the center of the super, I have also a very handy arrangement for reversing sections so as to bring unfinished ones to the center of the super, and at the same time counteract the tendency to bulge the outside sections.

The clamping arrangement is essentially as follows: The bolted blocks, D D, etc., are each parallel to the one opposite and at right angles to those adjacent, and far enough apart to inclose the super shell, and allow ⅜-inch play. The two beveled blocks, C C, are made of hard wood, as are also the beveled wedge pieces, D D, and all have the same bevel, ⅜ inch. The inside dimensions of the super are, of course, a little less than the surface covered by the sections intended to fill it; and as the wedges are ½ inch thick at the thinnest ends, there is about ⅛ inch to wedge upon. The blocks must be short enough not to interfere with the strap-iron corner fasteners while clamping. By making the inside length of the honey-boards ⅜ inch less than that of the super, the end tin supports can be dispensed with (I find they hinder rapid work in filling supers); but in tiering up it is necessary to use a bee-space support at one end of the upper super, the other end resting on that of the one beneath.

Perhaps the chief objection that can be urged against the use of this style of super, you have already mentioned—that arising from the variation in the width of sections. I find that, if the sections are pressed close together after the super is filled, by using the side-wedge the sections that cause the trouble (commonly but few) can be readily detected. These can usually be so interchanged as to make every thing tight; but it is a good plan to have a portion of the sections previously assorted as to width, by passing between two parallel strips fastened securely at the proper distance apart. Sometimes it is only necessary to exchange or plane down one or more sections of an outside tier. In this connection I would say that I find it very desirable to have my sections glued at all corners, and put together on a section-former. By using a lamp stove, three persons can put them together as fast as two can without gluing, and it pays in more ways than one. BYRON WALKER.

Capac, Mich., July 10, 1888.

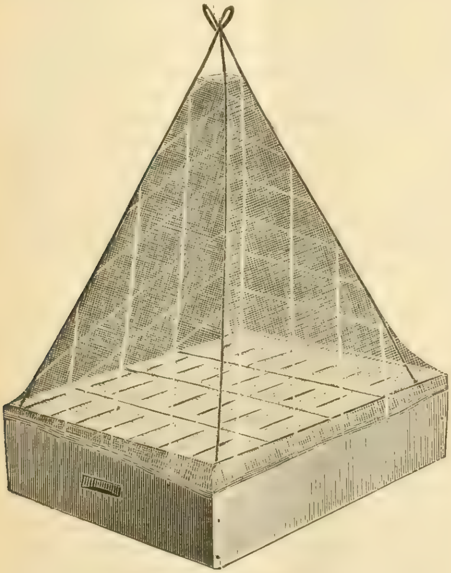
Accept our thanks, friend W.; but if you will turn to page 514, you will see that we do not say a *new* open-side section, although perhaps our language may imply it. We find by referring to the catalogue you send, that you made the same or very similar sections as long ago as you state. It may seem a little strange to you that we overlooked it; but with the hundreds of price lists that come to us annually it is almost impossible to scrutinize them carefully, and to note the new improvements that they may contain. If you sent samples at the time, we presume we failed to appreciate their point. Your surplus arrangement is somewhat of a combination of the one recently brought out by D. A. Jones, and the one recommended by Oliver Foster. The U tins may be better than the T tins in point of propolis, in that they form a knife-edge contact for the sections which they support; but they do not and can not, like the T tins, support separators independently of the case itself. These U tins, however, allow the sections to come in contact end for end. This is quite an advantage, indeed a necessity, with open-side sections. You say your case allows of an eighth of an inch play. Before us is a T super of sections. When the latter were put in they just filled the case, without any room to spare. After a lapse of about two weeks the six rows have so shrunk as to allow a quarter of an inch play. If your case allows but an eighth of an inch, it seems to us that sometimes you would be bothered with shrinkage of at least an eighth of an inch, no matter how you manipulate, and the sections would be as loose as in an ordinary case. As long as basswood sections will shrink to such an extent, will not such shrinkage largely if not altogether defeat the object of compression? and if it does, why go to the expense of making side and end compressing cases? It is true, such cases may facilitate the removal of sections, but we doubt if such removal can be effected any quicker than from the T super, *a la* Miller. These suggestions are not made for the sake of argument or for the sake of proving that the adjustable side case is of no practical utility, but to get at the truth. Perhaps friends Walker and Foster will prove we are all wrong.

GETTING BEES OUT OF SECTIONS.

A GOOD SUGGESTION FROM DR. C. C. MILLER.

HAVING finished taking off supers with more satisfaction than ever before, particularly in the out-apiaries, I will describe the bee-escape used, and the manner of using it. As usual it is nothing original, but a mere copy of Mr. Root's open-topped tent, only on a smaller scale. I do not think it better, under all circumstances, than every thing else; but for those not having other conveniences, it offers, at a trifle of labor and expense, a very satisfactory means of getting bees out of sections; and for getting a large number of supers cleared in as short time as possible, as is desirable in an out-apiary, I know nothing equal to it.

Take two pieces of No. 14 wire (lighter wire may do as well), each 3 ft. 6 in. long; straighten them, and bend each in the form of a loop at the middle, so that the ends of the two legs of each piece shall stand apart a foot or a little more as shown. The loop may be ¾ of an inch to an inch in length. The two legs must be carefully measured; and if not exactly equal in length, the longer must be cut off. It is not important that the two pieces be exactly equal in length, only the two legs of each piece. Now put the loop of one piece through the loop of the other, and stand the four legs at the inside corners of a T super upon the sections, as shown in cut. This makes the framework of our little tent complete. Now for the cover.



MILLER'S BEE-ESCAPE.

Take ⅝ of a yard of mosquito-netting. If wider than 1¼, cut it to that width, and then fold it double, making a square. Sew up one side, beginning at the folded corner, then clip off with the scissors the folded corner where it is sewed, so that the cut part shall be less than an inch across. Better have it too small than too large, for it can easily be enlarged. Now put the netting over the wires, and see that the hole at the top is large enough for two or three bees to pass out at a time. That's all; and if there are any bees in the super they can get out at the top, but no bee will think of getting *in* so high up. Of course, the arrangement can be made differently, so as to fit other than a T super. Possibly it may be desirable to fasten or weight down the sides of the little tent, but so far I have not found it necessary. Five or six supers may be piled up and a little tent put on top, and I have had good success piling them nine high. Don't understand me to say I would take a super from a hive and put on the little tent without having smoked out most of the bees before taking from the hive. If all the bees were left in the super, I think the youngest would not find their way back to their own hive.

To-day, July 31, I took off the last supers at the Wilson apiary, and it may interest you to know just how it was done. My assistant, Emma, played the smoker constantly, leaving me free to work without hindrance. First she gave a puff at the entrance of the hive, while I with a cold-chisel took off the super cover; and as I raised it, Emma began playing on the super. The smoker was kept in constant motion back and forth, not from side to side, but lengthwise of the sections; for in this way fully three times as much smoke will go down *into* the sections as if the smoker were moved crosswise. For this first one I must wait just a little time for the bees to get down, then the cold-chisel is slipped under the super, and it is removed. Immediately Emma turns her attention to the next hive, taking off the cover and smoking the super, while with brush in hand I take the super of the first hive, brush off the bottom, and place it on a super cover lying upside down on the ground, and I prefer it shall be out in the hot sun—it was directly in the sun to-day, with 98° in the shade; then I throw over it a cloth to keep out the robbers, go back and pry up the honey-board of the first hive, so the bees will have time to clean the honey off it before it is taken from the hive, and then take off the second super. When I had made a pile six or more high I pitched a tent on the top and started a new pile. Four piles were thus made. We had only four tents. Then we took off the honey-boards, and did some other work, and by the time we were ready to load the supers on the wagon, the bees were out.

SHIRTS FOR BEE-KEEPERS.

I have never been able to find a woolen shirt suitable for bee-work. They are all too dark, inviting stings; and if Ernest has found just the right thing, let him describe explicitly what it is, or, better still, furnish bee-keepers' shirts for sale.

Marengo, Ill., July 31, 1888. C. C. MILLER.

Friend M., I believe you have struck on a good idea. There is no doubt at all but that it will work perfectly, and will answer as good or better purpose than a bee-tent. Although you disclaim originality for the invention, you deserve a good deal of credit for putting an old idea in so practical a form. Just as soon as I read your article I had a bee-escape made, set it over a T super, and photographed it. The result is the engraving shown above. To provide against the possibility of bees crawling up the sides of the super and under the bottom fringe, we sewed in a rubber cord, the same as is done sometimes in bee-veils. This made the bottom of the fringe elastic, so it could be stretched over the super. It adds to its cost but little, and when robbers are bad it might be quite an advantage. I feel sure that its simplicity and cheapness of construction will commend themselves to the practical apiarist. It can be very easily folded up into a nice little bundle, so as to take as little space as possible when the apiarist gathers together his implements for a trip to one of his out-apiaries.—As to the underwear, I (Ernest) use an ordinary undershirt, half wool and half cotton. You see I assume the dignity of a white shirt, because I am among the bees only a part of the time. If I were among the bees the entire season I should wear a colored cotton shirt over the undershirt. By the way, friend Miller, I have been wondering if you have begun wearing woolen shirts for summer work among the bees; and, if so, how you liked them.

A SHORT LETTER FROM ITALY.

ALSO SOMETHING FURTHER IN REGARD TO MR. WM. M. HOGE.

If not mistaken, in June 1st Gleanings you asked about Mr. Hoge, a California bee-keeper. Well, I made his acquaintance in 1884 in London. I mail you the pamphlet he had distributed that year at the Health Exhibition, London, to advertise his honey; but some one who went to call for him in 1885 wrote to me here at home that his office was shut up, and that people had said that he was broken up. That is the last news I had of that gentleman. Inclosed please find also a cut from the *Standard* of the same year, which speaks, or, better, mentions, Mr. Hoge. F. Malory.

Luserna, San Giovanni, Italy, July 31, 1888.

Many thanks, friend M., for your kind words and kind letter; also for the little pamphlet you send us, published by Mr. Hoge. I will explain to our readers, that this pamphlet is a very attractive book of 25 pages, with illuminated cover, and contains the pictures alluded to in our editorial (see p. 364), Hoge's California Hoarhound Apiary. The pictures give a vast amount of information, and the book also contains much on bee culture, written in an exceedingly interesting and attractive style. But the saddest thing about it is, that poor friend Hoge seems to think falsehood more effective in building up a business than plain solid truth. As an illustration, he has taken a picture from our A B C book, representing a California apiary. It is the one where some boys are eating watermelons, on a long semicircle of hives, with the bees for a foreground. The real title of the picture in the A B C book is "Cogswell's Apiary, Los Angeles, California," edition of 1886. Now, friend Hoge has taken this very picture—perhaps copied by photo-engraving, and labeled it "Hoarhound Apiary." The whole book is an advertisement of his hoarhound honey. The description intimates that he has control or charge of 12,000 colonies of bees, and that 120 hands are employed to operate the hives. No wonder the poor fellow was shortly afterward broken up, as friend Malory tells us. The finest talents the world ever saw, with any amount of capital to start with, could only end in shipwreck where falsehood is used for a foundation stone.

ARRANGEMENT OF HIVES UNDER SHADE-TREES.

CARNIOLANS AND VEILS.

As there is a good deal being said just now, or has been recently, on the subject of bee-veils, and illustrations of sundry bee-yards appearing in Gleanings; and as you are a stickler for plain substantial things, and an enemy of much fussing and machinery, I think my style of bee-yard would please you, and especially those who have to work out in the broiling sun stooping over hives.

Dr. Miller's idea of trees in the bee-yard is on the right line for both comfort and convenience, if properly systematized. Broad-topped, low-branching trees are best; and if the bee-keeper happens to have such on his lawn or yard, he can utilize them at once. A broad-topped, low-branching apple-tree is probably best. If a bee-yard were being laid out for the purpose of having trees for shade, the trees should be planted fifty feet apart in the row; and the rows, if more than one, fifty feet from each other, the trees planted quincunx.

TO LAY OUT THE YARD.

Suppose the tree's furthest point of branches is ten feet from the trunk. Double a strong cord round the trunk, which will reach as far as the outer tip of the branches, and, with a sharpened stick, describe a circle round the tree. Divide the circle into five or six feet sections, or the distance you wish your hives to stand apart. They may be placed closer than when in long straight rows. Place the front of the alighting-boards on this circle at the distance determined upon apart, facing out. The morning and afternoon sun will strike the hives, and in the heat of the day they will all be in the shade, just when they need shade. The bee-keeper can work all day in the shade, while the bees fly outward, neither interfering with the actions of the other. In the spring, before the trees leave out, the hives will be in the sun the entire day, as they ought to be. A tree of the above size would accommodate 10 hives on 6-ft. spaces, or 12 on 5-feet spaces.

BEE-VEILS.

Those who have occasion to use veils a great deal should by all means have Carniolan queens. These bees to handle are almost as safe as though they were stingless. The bee-keeper can open the hives, shake the bees on the ground if he likes, blow them off the combs with his breath, and they will stand it all good-naturedly, making no attempt to fly or sting, and this without using smoke, veil, or gloves, and when there is a dearth of honey too. In honey gathering merits, the Carniolan is equal to the Italian. They are a black, or dark race, but readily distinguished from the German bee, being of a dark steel gray, with white hairy rings, and very transparent wings. The best remedy for the veil nuisance is the bee that seldom or never requires a veil. My bees are Italians, but they will not be after this season. E. E. Ewing.

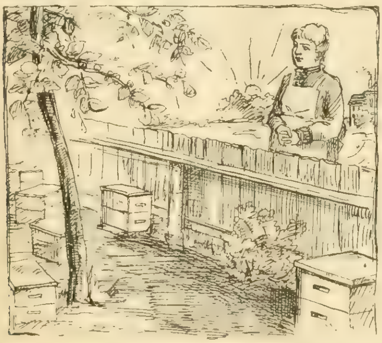
Rising Sun, Md.

Friend E., your ideas in regard to shade are good, and, so far as I know, original. An orchard answers very nicely when the trees are very small; but when they get large, the bees are often deprived of the sun when they need it. Your plan, however, of having the trees 50 feet apart, I should think might answer very nicely.—I suppose you know you are giving the Carniolans a pretty big recommend. We find them gentle enough, but they do not gather any thing like as much honey, according to the number of bees. Perhaps your strain is a better one, and may be ours was an exceedingly poor one; but the queen came from Frank Benton himself, and she was a selected queen at that.

MRS. CHADDOCK'S REPORT OF THE BASSWOOD BLOOM.

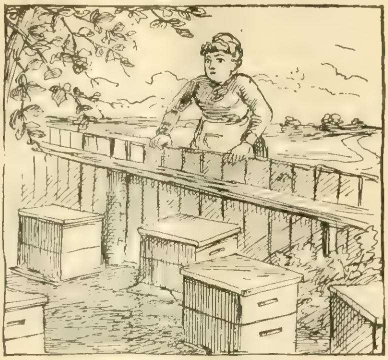
FIRST HOPING, THEN DOUBTING, THEN DESPAIR.

FRIEND ROOT:—I *always* smile when I read your foot-notes to my letters. You do not suppose—you can not suppose—that I spend *all* my time working with or crying over the bees. Sometimes I forget that I have any bees. When Minnie came home from her school she brought four new dresses for me to make; then Jessie wanted to go to the institute with Minnie, and she had to have two dresses made. There were just *nine days* for me to make the six dresses (and the other things) in. The girls did all the other work, and I sat in the parlor and sewed from daylight till dark, with the exception of an hour's rest after dinner. We had harvest hands and visitors and book-agents and beggars and tramps. One day the clock was too slow, and every thing was late, and the men came in before the meals were ready, and had to sit around and whistle awhile. The next day the *whole family* turned the clock forward, and every thing was too fast. I sat and sewed through it all, never going near the kitchen, except to meals, for the whole nine days. And what do you think happened in those nine days? I had been waiting patiently for the basswood to bloom, thinking that perhaps the bees could fill up the body of the hives with it, at least. The girls started to the institute on the 16th of July, and that morning early I went out to look at the basswood. I saw what looked like great greenish white buds—the tree just full of them. I put on honey-boxes, and gave the bees room to spread themselves, and said, "In a few days now the basswood will be in bloom."



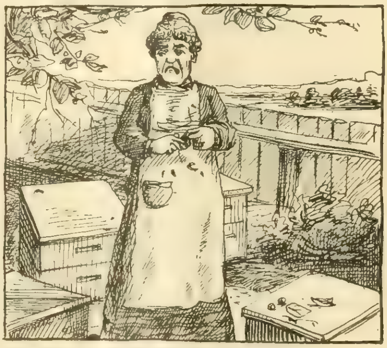
WATCHING FOR THE BASSWOOD-BLOSSOMS TO OPEN.

Every morning for five days I went out to see the flowers beginning to open. But there was always the same whitish, green, round buds, and not a single blossom.



DOUBTFUL AS TO WHETHER THEY WILL OPEN.

Then a fear, a doubt, a sort of sinking feeling of disappointment, took possession of me. It began to dawn on my inner consciousness that those round buds were too fat and plump for flower-buds. I picked some of them to pieces, and my worst fears were realized.



NOTHING BUT SEED-PODS.

There was a big round seed, filled with a sweet substance, in each one. The flowers had come and gone while I was making those new dresses. I suppose the bees did get a little honey from the flowers, as the weather was fine; but they did not get enough to make them roar. I always hear and notice them when they roar. They have been getting some very dark honey from the catnip for the last month—a little more than they use; but where is the honey for them to winter on?

Vermont, Ill. MAHALA B. CHADDOCK.

BEES AMONG THE INDIANS.

OUR GOOD FRIEND MRS. HARRISON GIVES US A WISE HINT.

BROTHER ROOT:—While I was working with the bees to-day, a lady called, and the conversation turned on the subject of bees. She is a teacher in an Indian school, and is on her way there. She said one of their boys had been very sick, and, when he was getting better, that he wanted honey, and that they were able to procure only a small tumbler of strained honey, which he enjoyed very much; that they had not been able to get him to talk any before this, but he brightened up, and told them how his father cut down a bee-tree and got the honey, which Indians are very fond of. The Creek nation gave them forty acres of land, which is cultivated to some extent in garden and orchard, and, thinking that bees would be a nice thing for them to have, wrote to Mrs. Lizzie E. Cotton. She informed her that she would send a colony for twenty dollars. This would amount to quite a sum when freight or expressage would be paid from Maine to the Indian Territory. She said that, if the children could learn bee-keeping, it might brighten their lives somewhat when they returned to their own homes, and she is anxious to have bees at the mission.

I told her that I thought Mrs. Axtell made a present of quite a number of colonies to some mission in that Territory, and it would be interesting to know the result. This lady formerly lived in Peoria, and was chosen for this work on account of her practical ability to do housework, cut and make garments, as well as being a good teacher and musician. I told her that I would ask you to send her GLEANINGS, and that she must make inquiries of the people about bees, what uses they make of honey and wax, and tell us about it. Her address is Miss Ada J. Bonham, Indian University, Bacone, Indian Territory. These children are taught the English language, and an avenue for good might be opened up through the reading of your publications. MRS. L. HARRISON.

Peoria, Ill., Aug. 29, 1888.

We owe you a vote of thanks, Mrs. H., and we will with pleasure send GLEANINGS, free of charge, to the address you give, as long as they will read it. And, by the way, it occurs to me that the Indians, above all other races, should take naturally to and become proficient in bee culture. If any other friends know of mission workers among the Indians, or, in fact, anywhere else in the wide world where GLEANINGS would be prized, we should be glad to send it free of charge; that is, free of charge to the missionary or teacher of any mission school, with the understanding that it is to be used as an aid in teaching modern bee culture.

MUD-WASPS.

SOME WONDERFUL INSTINCTS.

MR. F. A. GEMMILL, Stratford, Ontario, Canada, found some mud cells in an old bee-hive. He thinks the cells are different, as some contain larvæ and some spiders. He wishes me to describe them in GLEANINGS.

These are mud-wasps. They collect mud, build cells, then catch and sting, not to death, but simply to paralyze, spiders, which are placed in the cells. Each spider receives a wasp-egg, and the cell is sealed. Thus, if a cell is examined early, a spider or other insect will be found; if later, a larval wasp feeding on the spider; and if still later, the pupa, or perhaps the fully developed wasp; later still, the empty mud cells. It is a strange fact, that such wasps often collect spiders all of one species. Such was the case with this one sent by Mr. G. One of my students took this subject for special study this summer; and he found that, in several cases, the wasp peopled her cells with spiders—all of the same species. Another interesting fact has been reported, which I commented upon once before in GLEANINGS: The male wasp is smaller than the female, and so the mother-wasp puts more or larger spiders into cells which receive eggs that are to develop into females than into cells where the unimpregnated egg is laid. Here, then, the wasp not only voluntarily impregnates the egg, but she thinks of it afterward, and varies her course according to the needs of the case. Who says that insects do not think and reason? A. J. COOK.

Agricultural College, Mich.

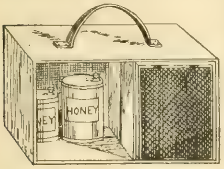
RAMBLE NO. 6.

A HONEY-PEDDLER, AND HIS EXPERIENCE.

MY cousin, with whom I passed the night, is a box-hive bee-keeper with five swarms. He is not an enthusiastic bee-keeper, and probably never will be, and will be content with a few swarms down by the garden wall among the rank weeds. If space were not so precious in GLEANINGS we could moralize over the free and undisturbed lifelessness of these bees. But leaving our rigid Scotch Presbyterian cousin, I am once more on the road. A prosperous farming community is before me, and but few indications of bee culture. I often see old box hives piled up beside the fence, without occupants, and am mentally glad to see them so; for if bees can not be managed according to improved plans, the hives had better be empty or made into kindling-wood.

The next bee-keeper I discovered was a son of Crispin, a justice of the peace, and a member of the Methodist church. This man was just starting in the business, and was very sanguine in view of the future. He was just in the honey-moon of bee culture, like all beginners, and in such a state it would be cruelty to throw cold water upon their hopes. It is far better to let them learn by experience that "all is not gold that glitters" in bee culture.

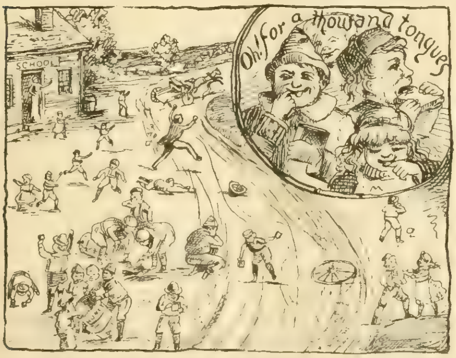
Soon after leaving this bee-man I was so fortunate as to run across the route of a honey-peddler. As disposing of honey is the order of the hour, I think the facts I gleaned will be of interest. Let me introduce the reader to Mr. E. I. Welch, a disposer of sweets. Mr. W. obtained his honey from an apiarist several miles from where I found him. He started in the morning from the apiary, with about 75 lbs. of comb honey and 200 lbs. of extracted, in large cans, provided with large honey-gates for quickly drawing off into pails. The trip seldom ran over two days, and oftener the return was made the same day, and the sales were mostly made to farmers on the various country roads running out not over twenty miles from the apiary. When the peddler started out from the apiary the honey was weighed out to him, and a memorandum made of it. When he returned, if any was left it was weighed and deducted; then the cash was handed over, and the peddler received 25 per cent for his labor and the use of his horse. The peddler furnished his own horse and wagon. Thus at the end of every trip there was a settlement, and there were no loose ends left to have a misunderstanding about, which was a most satisfactory arrangement. The honey was sold for from 10 to 20 cts., according to the style and quality. While proceeding through the country, and especially while upon a new route, the peddler carried a small sample case, having two sections of comb honey; one, A No. 1, and one a little off in color, or defective; also honey in jelly-tumblers of different qualities so as to give every one a taste, and to explain the various qualities. When the route had been established, the sample case was seldom used. In this way, I am informed the apiarist disposed of 4000 lbs. of honey in his own and adjoining towns, and which netted him a better price than if sold through a commission house. The time spent in disposing of this honey was about six weeks in the months of September and October. Many times, in order to make a sale, the peddler resorted to barter, and would take eggs or oats, the latter in limited amounts for feeding his horse. Having had success in the past in disposing of his honey in such a satisfactory manner, I understand the apiarist is devoting more of his time to the production of honey, and will this fall peddle his own honey, with this improvement: The honey will be carried in pails ranging from one to ten pounds. This arrangement will dispense with drawing off the honey, which is slow business in cold weather, and sticky business if dipped out. In connection with the sale of honey, the apiarist has made arrangements with a large tea company to canvass and deliver teas, coffees, and spices. Thus every house will be canvassed once a month, and the business can be kept up indefinitely.



WEBB'S HONEY-PACKAGE FOR RETAILING.

In peddling honey, the statements of the peddler, if stated candidly and truthfully, will be accepted by the majority of people, for the most people have common sense, and can detect overdrawn statements, and judge the man and the business accordingly.

Mr. W. had many amusing incidents to relate. Many persons would persist in saying that his honey was adulterated; even buckwheat honey was put under the ban.


Oh! for a thousand tongues
SCHOOL

A MISHAP IN PEDDLING HONEY NEAR A SCHOOLHOUSE.

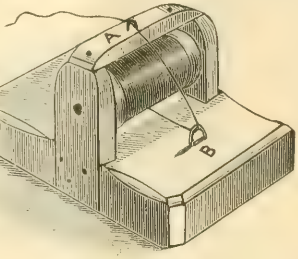
Many times a person would want only half a pound of honey, and bring out a ten-quart pail to get it in; then there would be a looking into the pail to find it. The only serious mishap encountered was the frightening of his horse near a schoolhouse. The sketch above explains the result.

The Rambler.

GOULD'S DEVICE FOR WIRING FRAMES.

LATE HATCHING OF EGGS.

Friend Root:—I send you by mail to-day a model of the arrangement I use to hold the spool of wire when wiring frames. I use the 1-lb. spool. A small bolt, or wire nail of proper size, passing through the side posts, holds the spool, allowing it to turn freely. A double-pointed tack, A, is driven into the top-piece, also one into the block to which the posts are fastened as at B. The wire is passed through these tacks, and, when not in use, is fastened to a tack driven into the block. I use a block one inch thick, and two 1½-inch wire nails to fasten it to the bench.



GOULD'S WIRING-DEVICE.

When I am done wiring I loosen the block and tack it up on the wall. When the wire is sewed through the frame and the end fastened, it may be tightened by holding the spool with one hand and pulling the frame gently with the other, making very easy work of it, even for clumsy fingers. Perhaps it would not work so well with your method of wiring; but with mine (see p. 83, Gleanings, 1888) it works well; and as many bee-keepers wire only lengthwise of the frame it would, without doubt, be very handy for them. Its greatest value lies in the fact that the wire can not unwind faster than it is used, and never kinks.

EGGS HATCHING WHEN 7 DAYS OLD.

My first swarm this season came out June 20th. I hived them according to the Heddon method to prevent after-swarming. Two days afterward I divided the old stock into nuclei. There was less than a pound of bees left in the hive; and as there were seven frames of brood, the nuclei were rather weak in bees. One especially was very weak in bees; but as the weather was moderately warm and some of the brood hatching, I concluded to see what they would amount to. One-third of one comb was filled with eggs; and on the 26th, when I examined the nucleus I found the eggs yet unhatched, and concluded that they had chilled. You can imagine my surprise to find them hatched the next day—just seven days and two hours after the swarm came out. Possibly they hatched on the sixth day after I had looked at them. Has any thing else of the kind ever come under your notice?

William E. Gould.

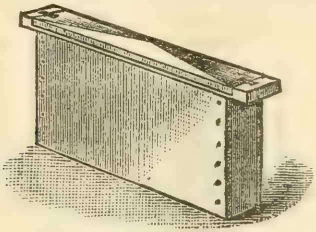
Fremont, Mich., July 11, 1888.

It has several times been inferred, friend G., that eggs, under certain circumstances, might be a week or two in hatching; but I do not remember that we have before had any such direct and positive proof as you give us. Doolittle has suggested that bees have the power of delaying the appearance of the larvæ when the weather or a scanty supply of food may make it desirable.

THE HOWARD COMB-FILLER.

DISPENSING WITH A FEEDER.

SOME time ago, perhaps you will remember, friend Miller described his method of filling combs with syrup, the same to be afterward placed in the hive. Our attention has been called recently to Howard's comb-filler, invented by Mr. J. H. Howard, of Holme, Peterboro, England. The engraving below shows the device.



HOWARD'S COMB-FILLER.

It is simply a syrup-tight box, into which a comb of the proper size can be placed. The lid is made removable, so that the combs may be taken out and replaced as fast as they are filled. In the circular sent, which accompanies the illustration, Mr. Howard says that the frame is placed in the box, and that the syrup, warmed 15 degrees above the surrounding temperature, is poured around the comb until within an inch of the top-bar. The cover is then adjusted, and some half-dozen up-and-down jerky motions cause the comb to be filled with three or four pounds of stores, according to its capacity. After this the frame is taken out and placed in a suitable box to drain. A wet sponge is then used to wipe off the surface of the comb so that it will be free from all drippings. As soon as the sponge is filled with syrup, it is squeezed, and the contents allowed to run back into the comb-filler.

We can not now speak from experience as to the practical workings of this comb-filler. We simply call attention to it, as it may contain an idea worth developing here in America. The engraving, we had reproduced from a print in Mr. Howard's circular.

A RED-CLOVER MITE.

IS IT ANY THING TO BE FEARED?

EDITOR GLEANINGS:—Allow me to call your attention to the destruction the "clover mite" makes in the red-clover fields. Acres on acres show hardly any blossoms, so that neither bumble nor other bees can get any honey. I begin to think that it worked in the white clover as well, and that is the reason we got so little honey out of it. The experience and observations of your correspondent would be quite an item to see published in GLEANINGS. F. J. M. OTTO.

Sandusky, O., Aug. 16, 1888.

We have asked Prof. Cook to reply, which he does as follows:

If Mr. Otto will send me specimens of the "clover mite" to which he refers, I will gladly describe it and suggest remedies if possible. Any insect attacking our clover is of great interest, both to farmers and bee-keepers. I do not think it can be a mite. The only mite that attacks our plants is the red spider—*Tetranichus telarius*, which is very commonly destructive in greenhouses and even to plants outside in dry seasons like the present one. I hardly think this is the enemy in question. There are very commonly in clover-heads long slim insects known as "thrips." Some are yellow, others black. I have wondered if these are the ones referred to by Mr. Otto. If so, I question if they do the mischief, as I find them common every year. Possibly the dry season blights the clover, and, as these thrips are present, they receive blame not their due. If the specimens are sent me I can quickly tell if these thrips are the forms which are causing the anxiety.

There is a very serious enemy to the clover-seed in our country, which has done serious mischief in New York, and is spreading to other States. It is the clover-seed midge. It belongs to the same family and genus as does the famous and dreaded Hessian fly and wheat midge. It is to be hoped that this is not the enemy that is despoiling the Sandusky clover-blossoms. A. J. COOK.

Agricultural College, Mich.

CONTRACTING, ONCE MORE.

DIVISIBLE-BROOD-CHAMBER HIVES, ETC.

THIS is a very important subject, for the system is one which adds immensely to the success of the honey-producer, and its advantages are yet only fully known to a few.

I am very glad that, in your foot-notes, you made so very clear the principle of horizontal contraction, which can be accomplished only with my divisible-brood-chamber hives. I offer, as an excuse for not making the matter sufficiently clear, that it seemed to me like repetition, for I have done so in my book and circulars. I desire, however, that you give full credit, and cast no undue shadows over the more tedious and less advantageous contraction of the non-divisible brood-chambers. You say, "I greatly prefer to have all the sections above the combs of honey, or, better still, combs of brood." This sentence will be found almost verbatim in my past writings upon the same subject, and I believe we are both right. But, friend Root, we do not move the bottom of the hive up, but we *cut away the top* of the brood-chamber as it were, which not only brings the brood close up to the surplus boxes, but it brings all of these boxes directly above the brood-combs, and, after this contraction, they remain combs of brood, and there will not be nearly as many brace combs built between the top-bars of the shallow frames and the honey-board as would be placed between deeper frames and the honey-board. Now, may I ask you to remember that the new hive is not a double-brood-chamber hive, but a *divisible*-brood-chamber hive; that it is not a shallow hive, but a deep hive comprising shallow combs? Sometimes the brood-chamber is two inches deeper than the Langstroth, and sometimes four inches shallower. It is as the bee-keeper's needs demand, and the change is made so quickly that scarcely any time is consumed, and robbers can not get in their work.

It does seem to me very strange that you yet have the least suspicion that any kind of honey-boards, even queen-excluding ones, have any tendency to lessen the amount of surplus honey stored. If you had made the numerous experiments which we have made, and on a large scale, you would know that they do not.

PROFESSOR COOK.

The portrait you present on page 678 is a good one; and, after reading brother Miller's short biography, I wish to add a word regarding our mutual friend and benefactor. We all know that one whose life-work has been in the direction of professorship comes out with a very different comprehension of things from that possessed by the practitioner. Almost without exception you will find this class of men, however brilliant in their life-work, impractical when turning their attention to practical things. Men whose works on economy have become standard, did not and could not practice economy in their own households; and this is the rule, not the exception. But Professor Cook is undeniably one of the exceptions to the rule. In all my acquaintance with practical apiarists, I know of no one who will quicker detect the impractical in any device or manufacture than will Professor Cook; nor do I know of any honey-producer who more readily recognizes the practical and profitable in bee-keeping. This, coupled with his extended scientific research, makes him a most valuable acquisition to our ranks; and though we disagree regarding many points in bee-keeping, I hope the time will never come when ingratitude, and blindness to the general welfare of honey-producers, will find me outside of the class who say, "Long live our benefactor, Professor Cook!"

PLEURISY-PLANT.

Last year I said something to your readers about this famous honey-plant, and always said I believed it to be the best one in the world because its habits are well nigh perfection, as well as its being so great a honey-yielder. I have told you before how fast it is multiplying in waste places, at the same time not being a noxious weed, nor giving any trouble to cultivators. Well, last year its seeding almost entirely failed; but, being a perennial, it appears in the same places where it did last year; but the rapid multiplication of past years is not to be seen this time. Is it not a mystery where honey comes from? From all I know concerning right conditions, gathered from twenty years' experience, observation, and reading, I can not say why white clover and basswood yielded but very little this year, under apparently favorable conditions, while the fall flowers have yielded well under unfavorable conditions, as we would call them. Then the pleurisy-plant which every year previously has shown honey standing in its blossoms, did not yield so copiously this year. It was only a minority of the blossoms that showed honey standing in them, although the bees never deserted it for basswood or any other blossoms. This year has proved no exception to the rule, that the pleurisy-plant is the best honey-yielder of all. It has spread until there is no dearth and robbing when basswood closes. We see that the quality of the honey is excellent, and the color about the same as white clover. It is standing full of seeds this season, and we believe that, in the near future, it will be the best surplus-honey-producing plant we have in this locality, basswood and clover not excepted.

THE SEASON.

I presume, taking the country over, that we have passed through the most discouraging, and, in fact, poorest honey-season on record. Let us not be discouraged, but recollect that, following last year's light crop, the markets are left cleared out, honey better appreciated, and the consumers habituated to higher prices. Our own crop has been something better than the average crop of the country. I have now on hand about 1000 lbs. of white clover, 5000 lbs. of basswood, and 10,000 of amber extracted honey. Of course, this is a very small crop, or, rather, fraction of a crop, from three apiaries containing the number of colonies I have in each. The quality of honey in this section is some better than that of last year. We shall strive to winter our bees to the best of our ability, believing that honey production offers more inducements at the present time than during the past few years. **JAMES HEDDON.**

Dowagiac, Mich.

Friend H., I am glad you have given us a name for your new hive. It is to be called the divisible-brood-chamber hive.—It seems to me there is something not quite understood in regard to this plant, pleurisy-root. We had it in our garden one season, but the bees did not seem to notice it very much. If there has never been an engraving of it, perhaps we had better have it pictured out, so we may all know exactly what we are talking about.

FALSE STATEMENTS IN REGARD TO THE HONEY BUSINESS OF OUR COUNTRY.

As a protection to our bee-keeping population, we propose in this department to publish the names of newspapers that persist in publishing false statements in regard to the purity of honey which we as bee-keepers put on the market.

BOGUS COMB HONEY; A MAN OFFERS TO SHOW WHERE IT IS MADE, FOR 25 DOLLARS.

YOUR article in last GLEANINGS, on bogus honey, is just what we need, and it is a pity that it, with your offer, could not be put in every person's hands in the land. You have no idea what superstition prevails among the laboring class of the country in regard to this matter. I am the first person who ever produced a section of honey in this neighborhood. At first my neighbors thought it was some artificial stuff until I got them to come and examine for themselves. Being a miner myself, and right among this class of people, we have some big arguments, even with people who have bees of their own in the old-fashioned box hives. The merchants here have been getting some 1-lb. section honey, but they find it very poor sale; but what little I obtain from my bees, or what is cut out of the old box hives, that is smeared around and mussed up in all shapes, sells readily at a good price. They claim it is pure, and tastes much better than any they get out of the store. It really makes me feel cross to hear an intelligent man stand up and advocate the cause of bogus honey. We have just such a one here who claims to have been in the bee-business for some time himself. He claims there is a factory at Reading, this State, that turns out comb honey. He has offered to take any person there and produce the honey, for $25.00. Being a poor man myself, and a poor scholar, he always gets the better of me.

In regard to chickens eating bees, I caught one in the act to-day. It was six or eight weeks old. I opened its crop and found 17 bees. W. S. Couper.

Cassandra, Pa., Aug. 20, 1888.

Friend C., I would not pay any attention to any man who wants $25.00, or any other sum, for telling where fraud is perpetrated. One who is any kind of a gentleman, let alone being a scholar, will always be glad to expose fraud, without charging a fee.

HEADS OF GRAIN

FROM DIFFERENT FIELDS.

BEES THAT WON'T DEFEND THEMSELVES, AFFECTED WITH THE "NAMELESS BEE-DISEASE."

I AM told that many bee-keepers have tried to keep bees here, but all had to give it up on account of the bees not defending their stores from robber-bees. The trouble is said to be the honey that is gathered from the buckeye, of which there is an abundance here, which blooms for about six weeks. During this time there is an unusual amount of immature or defective brood reared, some of which looks shining black. The bees seem to try to get rid of all this brood, but seem to pay no attention to bees that are robbing them. When strong colonies are first attracted they will butt at the first robbers, but let them pass in without any attempt to fight them. I can see no difference between Italians and blacks. Many of the robbers seem to be very young bees. Small knots of bees can be seen on all parts of the hives that seem to be feeding each other. As soon as robbing began I made the entrances so small that only one or two bees could pass, and with some hives I made the entrance through a four-inch plank; and while the honey-laden bees from the range would lose most of their pollen while struggling to get through such an entrance, robbers would come out so full that they could fly only a few inches at a time at first. I have never yet seen a bee here attempt to sting a robber-bee. I am told that the honey will be carried back and forth from hive to hive and from tree to tree, until it is about used up, so that very few bees can winter over; but as bees here swarm for about four months in a year, the country gets well seeded over again. I have only 16 stands, and have watched them for several days to see what could be done with them. I finally went to see a regular bee-ranch, about three miles lower down the mountains, owned by Mr. Butler. There the buckeye is not so plentiful. I found him extracting, with the entrances to his hives wide open, and no sign of robbing. I should like to have your opinion in regard to the trouble. Do you think that feeding at night, with healthy feed, would do any good? John Umholtz.

Alma, Santa Clara Co., Cal., July 23, 1888.

Friend U., the facts you relate in your letter in regard to robbing seem a little unusual; but there is a sentence or two in it which quite possibly explain the whole trouble. You say, "There is an unusual amount of immature or defective brood, some of which looks *shiny black*." The bees probably have what is called the "nameless bee-disease." When so affected we have known them to be little inclined to make any defense. It may be that all your bees have this disease. The only remedy is the removal of the queen and the introduction of another from some other locality.

DO GRASSHOPPERS EAT BEES?

The honey crop in this locality the present year was very short, owing to so much rain in the spring. I procured only about 1200 lbs. of extracted honey from my entire apiary of 120 colonies. One or two years I extracted as much as 8000 to 9000 lbs. Besides so much rain in the spring, I have been troubled in one of my apiaries with grasshoppers eating my bees. This is something that I've never read of before. Should I be troubled with them another season, can you or some of our brother bee-keepers give me a plan to get rid of them? J. M. Forrest.

Weldon, Houston Co., Tex., Aug. 10, 1888.

We sent the above to Prof. Cook, and he replies:

Mr. Forrest must, I think, be mistaken. There is no account on record of grasshoppers eating other insects. If Mr. F. has seen this, ask him to send me some of the grasshoppers, that I may identify them. We all supposed that grasshoppers ate vegetable food exclusively. Let us see these unique hoppers. A. J. Cook.

Agricultural College, Mich.

CORROSIVE SUBLIMATE RECOMMENDED FOR FOUL BROOD.

Gleanings is quite a treat to me, and has been of vital interest. I commenced bee culture three years since, with six colonies of Italians and plenty of foul brood, and the first year it took all of my assistance with the bees to save my queens; but I saved them by feeding carbolic acid and sugar syrup, but could not entirely eradicate it, for it broke out in the spring again. I had by this time located the nature of the disease, and given it much study with the assistance of your journal. I concluded that acids are the long treatment, so I experimented with various other antiseptics, and found corrosive sublimate to be the master of that germ. I can clean any colony in from 4 to 6 weeks, and have my old queens yet in good shape, without any foul brood; so if you have any further trouble with the disease, try it. You will find it as far superior to carbolic acid as the Italians are ahead of the black bees. P. G. Gress, M. D.

Atchinson, Kan., Sept. 4, 1888.

Corrosive sublimate may be effective, and it may in your case have done all you say it did; but if the disease should ever break out in our apiary again, in view of our past experience with medicines we should hardly want to take the risk again of testing other remedies in the shape of a liquid. We would either destroy the affected colony or treat it by the plan we have already given and now incorporated in the A B C of Bee Culture. Has any one else tried corrosive sublimate?

SHOULD THE QUEEN BE ALLOWED TO GO INTO THE UPPER STORY WHEN WORKING FOR EXTRACTED HONEY? SEE PAGE 617, AUG. 1.

To say that I was surprised at the answer to question No. 67 would be putting it very lightly. I have used all-zinc honey-boards on 50 hives for three years, and it would take a very serious argument to make me give them up. Perhaps more for this reason than any other, that, if the invention of J. S. Reese is to be used, there must not be any brood in the upper stories, or the bees will not leave them. I am highly delighted with the way the thing works, as it enables me to "handle hives instead of frames," with *no bees to shake off*. I use it in a half-depth upper story under a full one. I think Mr. Reese should have a vote of thanks for making it public. My report is, increase, 100 per cent; honey, half a crop. H. P. LANGDON.

East Constable, N. Y., Aug. 24, 1888.

BEES ATTACKING FRUIT.

We have a heavy peach crop, and honey is coming in (bees on the fruit all the time); the honey is dark, but thick, of a fruity flavor. About 75 lbs. was taken last week that had a decided grape flavor. This fruit also is plentiful. Is much honey made from fruit? I am inclined to think not.

BITTERWEED HONEY.

We have a weed called bitterweed, that spoils milk when cows eat it, as well as honey when bees gather from it. It grows on all commons like dog-fennel; has a yellow bloom, and flourishes in dry times when all else fails. Bees last year filled their hives solid with a beautiful honey from it, from August till frost. So far, the honey does not indicate its use. The honey is about as bitter as hoarhound candy. C. P. COFFIN.

Pontotoc, Miss., Aug. 15, 1888.

See our remarks in regard to bees and peaches, on page 682, last issue. In regard to bitterweed, can't you use it for coughs and colds, exactly as you do hoarhound honey? Who knows but it may possess wonderful virtues, like mineral springs and other things? You see, friend C., I feel like demanding proof at every step we take in this matter of remedial agents.

PERSISTENT ANTS, AND HOW TO GET RID OF THEM.

I have been reading and studying your A B C book for two years, and still have trouble with my bees occasionally, and am now having trouble with very small ants and others still smaller. They carry out the eggs, discourage the queen, and reduce the colony seriously about this time of year. One clipped queen made two attempts to leave, and the last time succeeded. Will you or some one else give us a remedy? I put one hive on legs, standing in 4 one-quart tin cans filled with coal oil, and they walked right over the oil on a thin scum that formed on it. A B C also says no danger of bee moth or web worms in winter, but this will not do for Texas either, as we find them here all winter. R. A. HARDY.

Lampasas, Tex., July 17, 1888.

Friend H., the ants you mention seem very persistent. As you have just subscribed for our journal, you have doubtless received the July 15th issue. On page 564 of that number, Prof. Cook gives two methods of destroying them. Either one, we think, will rid you of the nuisance. As to the moth worms, we would say that the statement in the A B C book refers to Northern localities. Perhaps we had better make it more exclusive, and at your suggestion we will so change the next edition. You need not be troubled with moth worms to any extent among your bees, if you introduce Italians. If the worms have gotten into the combs stored away, you want to fumigate them with sulphur in a tight room, as per directions in the A B C book. After that they can be kept in a close box when not in use, and you will have no further trouble with moth worms.

ROCKY MOUNTAIN BEE-PLANT SEED FOR EXPERIMENTAL PURPOSES BY PROF. COOK.

Prof. Cook has just written us the following card :

Dear Mr. Root:—I wish, for my experiments next year, to have a bushel or two of Rocky Mountain bee-plant seed, *Cleome integrifolia*. Can you aid me in procuring it? A. J. COOK.

As we have only a small quantity on hand, we should be glad to have some of our subscribers in California or elsewhere, who may be able to furnish the professor with seed, to write him at once, stating quantity and prices. We suggest that, as the seed is to be used for experimental purposes, and for the benefit of bee-keepers, it be furnished as cheaply as possible. Perhaps a number would feel as though they could contribute a small quantity free of charge.

SHUTTING BEES UP IN THE HIVES TO PREVENT POISONING, AND HOW TO DO IT.

Could I shut my bees up with an extra top box, with wire top, for three or four days, without water, this summer weather, and not injure them? I lost all my apiary, nearly, last summer, by the bees being poisoned during the time when the planters in this section sprinkle the cotton with Paris green, to kill the worms. I thought that, by shutting them up till the first rain after the sprinkling, or until the flower drops, which some affirm is in three days, I might save them. You may understand how worried I am, as I lost about 90 colonies last year from this cause. MRS. ELIE GANIER.

Milliken's Bend, La., July 24, 1888.

Mrs. G., you can shut your bees up in the manner you suggest, and we believe it would be by far the best plan for preventing another mishap. You can keep the bees shut up for a week, but you want to be sure they have plenty of ventilation. I would tack wire cloth on top of the hive where it is covered with a quilt. In any case, the hive should be in the shade. If you do not have natural shade, give them artificial shade by putting up a shade-board or something of that sort. These remarks may be timely for those whose bees trouble the candy-men at the fairs. If they have honey, they don't need water.

THE VALUE OF LANDMARKS IN QUEEN-REARING.

I am in a predicament. I have lost nearly all my young queens. I wish you would tell me the cause of it. In the first place, when a colony swarmed, instead of giving them a new hive I put them back in the same hive they came out of, but took out from 2 to 4 frames of brood and started a nucleus. Now, a queen hatched in every nucleus; but out of 20 I have only 5 that have a queen left. This yard of 50 colonies is in a place where there is not a tree or bush. Do you think the queens failed to find their own hive? I have another yard of 18 colonies not over 200 feet away from the first, where I have raised 10 nuclei, and every queen is all right and laying. This yard is full of pear-trees and raspberry-bushes. All hives are 9 feet apart each way. What do you think about it?

Newberry, Pa., July 16, 1888. F. W. LIGHTON.

Friend L., we can hardly see why there should have been such a loss of queens in one case and not in the other. The absence of landmarks might account for it altogether. When very many nuclei are similarily situated, and have a similar appearance on a plain spot of ground without a bush or other distinguishing features, some of the queens are apt to be lost. Neighbor H., our queen-breeder, allows weeds and bushes to grow among his hives. His reason for so doing is, that the bees may the better recognize their home.

RED-CLOVER HONEY.

I have, at different times, heard a good deal about certain strains of Italian bees that would work on red clover; and in your foot-notes, in answer to Mrs. Chaddock's long face, in GLEANINGS for Aug. 15, you say your "bees are now working on red clover with a vim." Now, I have kept bees more or less for forty years, and have studied their habits not a little, and I think I can safely say that I never saw to exceed twenty honey-bees working on red clover, and I would willingly pay one dollar for a one-pound section filled solid with red-clover honey. I have in my apiary your strain of Italians, and Alley's and Brush's, but they do not touch red clover. P. L. NORTON.

Lanesboro, Pa., Aug. 4, 1888.

Friend N., don't get uncharitable toward your brethren, even if you do not get red-clover honey in your locality. Please remember that there are two things to be considered: First, it seems that red clover does not furnish honey in large quantities in all localities; second, it is only occasionally that it furnishes a good yield in any locality. I remember only one year when it gave a surplus as large as white clover. But I do not remember a season, however, when I could not take some one who was incredulous, like yourself, into a field of red clover, and find great numbers of Italians on the heads, and this, too, when the common bees were at the same time very busy on buckwheat.

BEES STEALING EGGS.

I bought, a few days ago, a colony of bees of a neighbor that he had taken out of a tree. They would not be satisfied with their new home. They would swarm out from one to three times a day. Last Saturday they came out again, and he hived them; and in less than an hour they were out again, and the neighbor let them stay out, so they went off and were gone a day and a night, and came back and tried to enter another colony, but were driven out. Finally they went back into their hive which they had left so often, and apparently went to work in earnest. When I bought the bees they were supposed to have no queen. I was wanting them to put with a very weak colony I have, that I had a few days before bought an Italian queen for. When I drove the bees out of the box I examined them very closely, to be sure they had no queen, and found none; but what surprised me most, they had one piece of comb about as large as your hand, and in that comb were four queen-cells with an egg in each cell. Where did they get the eggs? Steal them? They had no queen, I know. I took the bees home and put them in with my Italian queen, and they are the best contented bees you ever saw.

Williamsburg, Ky., July 10, 1888. D. H. WEBB.

Friend Webb, from the facts you relate it might be possible that the bees stole their eggs with which to rear a queen. Their queenless condition became desperate, and their efforts were likewise desperate. Reports of this kind have been given before; and the decision was that one or more of the bees actually entered other hives, secured their prize, and returned home safely. But when we find eggs in a colony which is queenless we must not always jump at the conclusion that the eggs are stolen. As a general rule they may be accounted for by the presence of fertile workers. It might be that the eggs you saw were from fertile workers. As the matter stands, there is as much reason for believing that they were from this source as from the other.

TOO MUCH TINKERING WITH THE BEES.

The selected queen ordered of you through J. M. Jenkins a few days since, arrived safely, but was lost in introducing. I had introduced seven other queens (dollar queens) bought of Jenkins, and had not lost one, although I put them in and removed the old queen at one operation. I thought to be specially sure with yours, and so removed the old queen one evening, and put the new caged one in next morning. At noon of that day I saw some robbers trying that hive, and looking at the queen. I found the outside bees in the hive had massed themselves on the wire cloth till they had heated the honey, over which the cage had been placed, till it was sticky and running, and some of the escort bees were dead. I thought the bees ought certainly to receive the queen then, and so pryed the cage up and liberated her, but they crowded around her and bit and tore at her until I recaged her on another part of the comb alone. Here she remained safely all night. Next morning I looked and found one or two bees had gnawed their way in to her, and they seemed peaceable toward her; but still, to make all sure, I thought best not to turn her loose at once, but dug the comb away a little more, so that the bees could very easily liberate her themselves. In the afternoon, when I examined again, I found about 50 or 60 bees in the cage, and packed down solidly against one side, all on top of the queen. I took my smoker and got her out on the comb. She looked pretty badly worried, though she went at once to dipping into the honey-cells. Still the bees would ball her, and I removed her entirely, and put her in a tumbler with some candy, but she seemed to have been stung too badly, for she lived only a very few minutes. I thought that, by destroying every queen-cell they build, and keeping them queenless till the new queen arrived from you, they might be then in a humor to admit a queen peaceably. If they still persist in denying her, I think I will try your plan of taking combs of hatching brood and shutting her up with them.

H. D. COOPER.

South Pittsburg, Tenn., July 30, 1888.

Friend C., one reason of your failure, and perhaps the only one, in introducing the queen mentioned, was because you tinkered with the bees too much. If you will turn to your directions for introducing you will see that we recommend letting the bees alone as far as possible after the cage has been properly fastened to the combs. Too frequent handling is bad. It not only disturbs the bees, but it invites robbers, and this in itself will make introduction a failure. Though, in the first instance, you did right in removing the queen, yet you should have immediately recaged her on the comb. If the bees cling very thickly over the cage you should not think of letting her loose. This is a sure indication of their hostility toward her. We introduce hundreds of queens, and yet we scarcely ever pull the cage off the comb to release the queen. Let the bees do it themselves.

EVAPORATING IN THE GARRET, AGAIN.

The following letter was forwarded by C. C. Miller to us. As it corroborates the doctor's statements, we give it entire.

C. C. Miller:—I have this moment read your article in last GLEANINGS concerning the evaporation and ripening of honey. I wish to add my experience in favor of keeping honey under a roof. I had partly filled sections left from last year, which were stored under the roof, and this spring I was surprised to find the honey liquid, even in combs which had not been sealed at all by the bees. I never had comb honey candy or crack, kept in that room.

The past has been a poor season with us. I have only 2300 lbs. of comb honey. We did not have a drop of rain during July, but to-day it is raining a little.

J. H. LARRABEE.

Larrabee's Pt., Vt., Aug. 4, 1888.

THE SWEET DEPOSIT ON LEAVES SOMETIMES AN EXUDATION, NOT FROM INSECTS, BUT FROM THE LEAVES THEMSELVES.

The following question and answer I got from the *Atlanta Constitution:* What is the sweet substance found on leaves in early summer, called "honey-dew," and how does it come there?

Ans.—It is a substance similar to sugar, which is formed inside the leaf, and exudes upon its surface as a waxy matter is thrown out on the surface of some leaves. It has nothing to do with dew—is not deposited on the leaf from any outside source.

The *Constitution* has a "Farmers' Question-Box," and answers many questions every week. It seems that there are still various opinions in regard to what honey-dew really is.

Some years we have no honey-dew. Once in several years we have a pretty good crop, as we had this year. Our honey (some of it) was quite thick with sugar, even before it was sealed, so much so that we could not extract it. Some say the honey-dew was the cause of it. Why, then, did not all the hives have sugar! Some hives had none at all. Can you account for it?

J. M. HARRIS.

Fish, Ga., Aug. 16, 1888.

Friend H., it is true, that a good many plants yield honey or sugar from the surface of their leaves; that is, they do occasionally; therefore I should say the above answer may be perfectly correct. You will see, by consulting the matter of "Honey-dew," in the A B C book, however, that a good deal of the honey-dew consists of exudations from insects.

HONEY FROM CUCUMBER-VINES.

Do bees gather honey from cucumber-bloom? If so, why not plant a large patch for them? I notice them busy all day on the bloom. I see that they do not gather pollen from the bloom.

J. G. WILSON.

Adamsville, Tenn., Aug. 2, 1888.

Friend W., bees do gather honey from cucumber-vines, as well as from melon, squash, and pumpkin vines; but instead of raising cucumbers for the honey the blossoms produce, I would raise the cucumbers for pickles, and then your honey will cost you little or nothing. Better still, move your apiary to some locality where cucumbers are extensively raised for the pickling business. The proprietors of the cucumber-farms will be glad to have you do so, when they understand things. I have never heard of a cucumber-farm being utilized in this way; but the expense will be much less than raising cucumbers expressly for the bees.

HOW TO RAISE PURE ITALIANS IN AN APIARY OF BLACKS; DUMMIES IN CONTRACTING.

I have three hives of Italians and also fourteen hives of blacks, on L. frames. Do you think I could raise my own queens from the three Italian queens (all the workers from each are three-banded), by using the drone and queen trap, with any assurance that they would meet Italian drones? I see in a good many bee-journals that contraction is advocated. Now, I can not see how, with the Simplicity hive, you can control and use the Moore crate or T-super without filling the space between the division-board and hive, with something to prevent the bees from going into the empty part. Please explain.

There will not be much honey here this year? Early in the season the prospect was never better; but we had a long June drouth, and there was nothing for the bees to work on. Fifty pounds is the most comb honey I have taken from one hive yet.

LESTER JUDSON.

East Sidney, N. Y., Aug. 1, 1888.

Friend J., you can raise queens from Italian queens of your own, successfully. By the use of the drone-trap, as suggested, you will probably obtain pure queens. With three or four good Italian queens you can Italianize your whole apiary. The progeny of some of the queens, in spite of you, may produce hybrids; but these impurely mated queens you may easily weed out, and by selection secure nothing but pure Italian queens.—As to the matter of contraction, although not expressly stated in the bee-journals and text-books, they have assumed that the space between the division-board and the hive should be filled with a dummy, or something of that sort. In a moderate honey-flow the bees will not occupy this side space; but when honey is coming in freely they will be pretty apt to fill it full of comb and honey if left to themselves.

BEES BUILDING COMBS CROSSWISE; WHY SWARMS SOMETIMES LEAVE.

I had one swarm this spring, and increased to five. The last one came out the Fourth of July. I hived them, and never went near them until the 6th. I found they paid no attention to the frames, but built their comb across them. I took the frames all out, tore the comb off the frames, and put it in straight, and left them till the next morning. When I examined them they had a little honey in the combs, but could not find any queen. They left about 10 o'clock. Can you tell me why they left? **W. Wright.**

Ludington, Mich., Aug. 7, 1888.

Friend W., bees will occasionally build combs crosswise of the frames, but usually they don't. To avoid any such mishap, use strips, or, better still, full sheets of foundation. It is possible that you killed the queen when you straightened the combs; and it is possible, also, that, because of the altered condition of the hive, the bees took a notion that they would depart for quarters where their hive would not be changed. Without fuller particulars we can not assign a reason why swarms will occasionally abscond. See "Absconding Swarms," in the A B C, which you have. See also "Foundation."

HOW TO GET PROPOLIS OUT OF COMBS; AN ALLEGED CASE OF BLOOD-POISONING FROM BEE-STINGS.

What would you advise doing with combs when they are filled almost full with pollen? My bees have made scarcely any honey this year yet; and to fill their combs, they are doing it with pollen.

A man died here this summer of what his physicians said was blood-poisoning caused by bee-stings. He was an old bee-keeper; his name was Harnet, and he had kept bees for years. Do you really think that killed him? **Mrs. H. J. Proper.**

Franklin Corners, Pa., July 31, 1888.

The best way to get pollen out of the combs is to let the bees get it out in brood-rearing. If you don't want them to have so much pollen now, remove the frames containing an excess of it and store them away until such time as you would like to have your bees rear brood—as, for instance, in the spring. Pollen can be removed after a fashion, it is said, by allowing the combs to soak in water for a time, after which they are to be sprayed with a force-pump. We have never tried the plan, but we have had reports from some who said they succeeded. If we are correct it was a slow job, and hardly worth the time.—We feel quite sure it is a mistake, that the person of whom you speak died of blood-poisoning as the result of too many stings. The physicians in charge surely were not informed. There are thousands of bee-keepers who probably have had as many or more stings than the one you mention, and yet we never hear of their dying because of blood-poisoning only occasioned by stings. So far as anybody knows, the virus produces a temporary effect only. It is true, bee-stings sometimes result in death, but that has nothing to do with blood-poisoning.

A CRIPPLED QUEEN; ARE SUCH AS GOOD?

Will a queen with a maimed pollen-leg do as good service as one uncrippled? I have one, a large beautiful yellow queen, crippled. She was all right before taking her flight, but afterward I noticed that she was crippled. She would lift her maimed leg on her back, and use the other leg all right. Yesterday I noticed it cramped tight to her side, and eggs in the middle of the cell; but once in a while we see one lying at the bottom. She proves to be a poor layer. I have an extra queen. Perhaps I had better give the bees a better queen. **S. R. Briner.**

North Springfield, O., Aug. 11, 1888.

As a general rule, the loss of one leg from a queen does not impair her usefulness. She does not present quite so nice an appearance; but, so far as we are able to observe, she will lay just as many eggs. If the queen you mention is so crippled as to be unable to deposit her eggs properly, and is likewise a poor layer, you had better replace her.

FOUR-PIECE SECTIONS.

Friend Root:—Both yourself and Mr. Green make, as the chief objection to the four-piece section, the time required to put them together. Mr. Holmes, the president of the Vermont B. K. A., recently told me he put together 1000 sections in less than four hours, and glued them. First the glue should be thin, then the sections should be dipped into it by the handful. The rest will come with practice. Does this leave much to be desired in the way of sections? I pledge you my word, that Mr. Holmes spoke the truth. **J. H. Larrabee.**

Larrabee's Pt., Vt.

Why, friend L., our girls in the factory consider it no difficult task to fold 1000 one-piece sections per *hour*. This is their regular rate. It seems to me the objection to the four-piece still holds good. Time is money, even to a bee-keeper. You will remember that the little folks reported very nearly this speed.

IN FAVOR OF FLAT-BOTTOM FOUNDATION; PERFORATED ZINC NOT DIMINISHING THE HONEY CROP.

In some of the back numbers of Gleanings you ask for reports on perforated zinc and flat-bottom foundation. I have used Vandeusen flat-bottom foundation No. 3 for the past five years. The present season I used 6 pounds, filling the sections full. The latter part of the season I tried the Dadant and Falcon brand, but the bees accepted the flat bottom the most readily of the three. I never have complaints of fishbone when using it.

I have used perforated zinc on 20 colonies per year for the past three years, and have had but one queen pass through it. Chicago perforated zinc is too small for bees to pass through when full of honey. I can not see that the zinc lessens the honey crop. From some colonies I took 125 pounds extracted honey, leaving plenty to winter on below. I consider it one of the best things in my apiary. I have no trouble with upper and lower brood-frames being built together when using it.

When extracting I give the bees ten Simplicity brood-frames in the brood-chamber, with perforated zinc on top. If the queen had full range of the hive, I would have upper and lower stories two-thirds filled with brood. The beauty of it is, I have no queen to look for; no brood, but full frames of honey. H. P. FAUCETT.

Dilworthtown, Pa., Aug. 6, 1888.

Friend F., I am very glad indeed to get both reports. We are glad there are two sides to the matter of flat-bottom foundation, and we are also glad to hear that the zinc answers so well the purposes for which it was originally designed.

A PRECAUTIONARY MEASURE FOR FOUL BROOD.

I have two new chaff hives, a two and a one story, in one of which I placed a super containing section boxes containing some honey used last year, some of them probably over the hives which had foul brood. At the time I did this I did not know I had foul brood. No bees have ever been in the hives. Would it be necessary to boil the hives, or would spraying with dilute carbolic acid do? Or would pouring boiling hot water on them do? If you think boiling would be best, can you tell me what is the simplest means of doing it? Are your bees wholly free from foul brood now? How long have they been so? Would Doolittle's plan, mentioned in his notes at the end of the A B C, be a sure cure for foul brood? MARK W. MOE.

Denver, Col., Aug. 7, 1888.

Friend M., if there have been no bees in the hive you speak of, I think a stream of boiling water from a tea-kettle, spattered pretty well around the inside of that hive which contained the crate of honey from the foul-broody colony, would answer. It would probably be perfectly safe to use it as it is; but to be on the safer side you had better carry out the suggestion as above. Our bees are wholly free from foul brood, and have been for the last three months. Doolittle's plan as given in the comment is all right.

HUMBUGS AND SWINDLES

PERTAINING TO BEE CULTURE.

THE GOLDEN BEE-HIVE, ONCE MORE.

MR. ROOT:—Inclosed I send you a circular, scattered in this country; and parties are selling farm-rights, and giving a hive for $10.00. What of the hive, and about their right to sell farm-rights?

Fairley, Miss., Aug. 29, 1888. G. S. LEATHERBURY.

With the above was a two-leaf pamphlet. It is not dated, which is usually the case with such documents, so we have not any idea at all when it was printed. We presume, however, it is not very old. The pamphlet commences with a large black head—"A Square Talk to Beginners," and gives some information in regard to bee culture, winding up with the assertion that the Golden hive is the cheapest and most convenient one in the market. Among a lot of testimonials is the following:

> Prof. A. J. Cook, of the Michigan Agricultural College, at Lansing, reports over $80 from each swarm of bees kept in the Golden hive last year.

Now, if I am correct, Prof. Cook did, some years ago, make a report of quite an astounding yield per colony from the bees at the college apiary; but I am quite sure it was nothing like $80.00; and, furthermore, Prof. Cook never had any thing to do with the Golden bee-hive in his life, and I am quite sure there has never been one of them tested on the college grounds. Again, we have the following:

> Mr. Adam Grimm, of Jefferson, Wisconsin, said, a year ago, that he had $36,000 out at interest, that he had made in five years from his bees. This was net profit, and does not include 1200 colonies of bees on hand, as capital stock. He uses the Golden bee-hive exclusively.

You see, the statement starts out with a grain of truth. Adam Grimm did secure several thousand dollars by keeping bees; but the assertion that he used the Golden bee-hive exclusively is one of the most bare-faced falsehoods I ever saw in print. He used a plain and simple modification of the Langstroth hive, and was as much opposed to patent bee-hives as anybody. Then comes the following:

> Mr. E. Townly, of Wooster, Ohio, says: "I purchased 10 hives of bees in the old-fashioned gums, for $50, which I transferred to the new Golden hive, and after dividing I had 30 colonies. From these I sold five hundred and forty-seven dollars' worth of honey; and the increase of my bees, at $5.00 a colony, is worth one hundred more, making me six hundred and forty-seven dollars in one year, from an outlay of fifty dollars."

This same statement first appeared in H. A. King's "Bee-keepers' Text-book," written 20 or 25 years ago. Since that, the same lingo has been copied into various patent-hive circulars; and quite a few of them have declared that this Townly used their hive and no other. Now, this Golden bee-hive man has the audacity to say that the result was achieved by the Golden bee-hive. The circular is signed by J. B. Pickrel, Nashville, Tenn. A string of names is also appended, as indorsing the hives, from Enterprise, Miss. Now, then, friends, we are going to hunt up this J. B. Pickrel, and make him stand up and explain, if it is a possible thing. Please help us to get hold of him, if he is not to be found at Nashville, Tenn.

Friend L., we are very much obliged to you for sending us this circular, and we should be very glad if you would show this article to every one who has invested or thinks of investing in the Golden hive. In fact, we will mail a copy of this number of GLEANINGS to every individual that any of our readers know of, who have ever had any thing to do with the Golden hive, or who may be contemplating investing in rights. If any of you think I am mistaken, I can easily get statements from Prof. Cook or our friend George Grimm, son of Adam Grimm. It is but little better than forgery to take reports like those we have copied, and change them so as to favor some patent hive which the parties had never heard of. Our old readers all know that the Golden bee-hive has been ventilated every little while for ten or fifteen years. Every one who has any thing to do with it seems to be up to tricks of this sort, but we have never got hold of any thing as barefaced before.

OUR QUESTION-BOX,

With Replies from our best Authorities on Bees.

All queries sent in for this department should be briefly stated, and free from any possible ambiguity. The question or questions should be written upon a separate slip of paper, and marked, "For Our Question-Box."

QUESTION NO. 76.—*(a) Should the honey-exhibitor try to sell honey at the fair? (b) In order to make such selling a success, what form and size of package has been found to "take" best?*

I think not. H. R. BOARDMAN.

Yes. Very small ones. A. J. COOK.

a. Yes. b. In small and attractive packages. PAUL L. VIALLON.

a. I see no objection. b. I have had no experience. E. E. HASTY.

I am not posted in this matter, so I leave it to those who are, to answer. G. M. DOOLITTLE.

a. Why not? b. Different in different localities; but in general, small packages, one pound or less. C. C. MILLER.

a. That depends upon his object in exhibiting at all. b. I do not know, because I have never tried it. GEO. GRIMM.

a. We never tried it. b. We should think tin pails best for extracted, and pasteboard boxes for comb honey. DADANT & SON.

a. Yes, unless he is going to lose prestige among dealers by so doing. b. The smaller and most attractive first-class packages. JAMES HEDDON.

Please excuse me from answering the questions relating to fairs, as I do not remember to have attended a fair since I commenced keeping bees, and am therefore too ignorant to answer them intelligently. P. H. ELWOOD.

If circumstances generally are favorable, yes; otherwise, no. I always felt a little delicacy in offering goods for sale at a fair. It seems to savor too much of the mercenary, where public interests should be the principal aim. R. WILKIN.

a. Yes. b. Localities differ. At the Tri-State Fair at Toledo, extracted honey sells better than comb; and although some is sold in glass, a larger quantity is disposed of in pails, holding from twenty-five cents' to a dollar's worth. DR. A. B. MASON.

We don't attend the fairs. If we did, we would go prepared to sell honey; would take 5 and 10 gallon kegs, and a box, say 50 nests, of tin pails—pints, quarts, 2 quarts, 3 and 4 quarts. As we don't raise comb honey, we would not take any. E. FRANCE.

a. Yes. This should be one of the main objects of the exhibit—not simply on account of the honey that may be disposed of there, but because customers may be secured who may prove permanent ones, and because such dealings teach the general public to buy honey. b. Pound sections in paper boxes, and the smaller packages of extracted honey, style to suit locality. All should be neat and attractive, with no chance of daubing. The Harmer 5-cent section should sell well. JAMES A. GREEN.

Queries No. 76 to 80 inclusive relate to a subject on which I can not give the results of practical experience, as I have had none, and I take it that this department is not a suitable place to air theories. Mr. J. W. Bittenbender, of Knoxville, Iowa; Mr. A. J. Norris, of Cedar Rapids, Iowa, and Mr. H. E. Kimball, ——, Iowa, have all had much success in making large exhibits at the Iowa State Fair for years, and they could give your readers valuable information if they would. O. O. POPPLETON.

QUESTION NO. 78.—*What do you consider a fair premium for the best sample of (a) comb honey; for the best sample of (b) extracted; for (c) the best and largest display of both comb and extracted; or (d) best colony of bees; for (e) best hive; for (f) best extractor; for (g) best smoker, when the articles named are to be exhibited at the county fair?*

Let some one answer who knows more about it. GEO. GRIMM.

a, $1.00; b, $1.00; c, $5.00; d, $2.00; e, $1.00; f, $1.00; g, 50 cts. E. FRANCE.

We should think that a, b, and c deserved $5.00 each, and d, e, f, and g, about $2.00. DADANT & SON.

a, $2.00; b, $2.00; c, $5.00; d, $3.00; e, $1.00; f, $1.00; g, $.50. Best exhibition of every thing, $5.00. A. J. COOK.

This not only depends on the managers, but according to the population and the cash available for the purpose. PAUL L. VIALLON.

They should be in proportion to premiums in other departments. Some societies are able to and do pay higher premiums than others. H. R. BOARDMAN.

a, $2.00; b, $2.00; c, $10.00 to $25.00. I do not think cash premiums should be offered for hives or implements unless they are for the best collection. JAMES A. GREEN.

In regard to fairs I have always been a "hostile Indian." If you get me to name the prices, I fear you would see only a dreary array of $0.00; $0.00; $0.00. E. E. HASTY.

That depends a great deal on the value of the exhibitor's time. It would take a big premium, and almost a certainty of getting it, to tempt me to go to a fair and leave a paying business at home. G. M. DOOLITTLE.

A large county of 50,000 population could probably give three times as much as a small county with 15,000; but an average county should offer, perhaps, a, $3.00; b, $2.00; c, $6.00; d, $4.00; e, $2.00; f, $2.00; g, $1.00. R. WILKIN.

I couldn't answer this question, having had very little experience and less interest in the matter. I have noticed that the producer who is always spending his time and energy looking after premiums loses more than if he had put it somewhere else. JAMES HEDDON.

a, $1.00; b, $1.00; c, $2.00; d, I wouldn't have such. Who can tell the value of bees by looking at them? e, Out of place also; f, perhaps diploma; g, hardly any one will compete—only a dealer, and he will exhibit as an advertisement. Still, 25 or 50 cts. premium would make sure of an exhibit. C. C. MILLER.

The amount of premiums for each class or article named depends entirely on the strength and resources of each agricultural society that gives the fair; but the proportion of premiums to each is very important. Hives, extractors, and smokers, are usually exhibited for purposes of sale and advertising, and need little or no premiums except diplomas. Neither should the premiums be large on best samples (small quantities) of either kind of honey, or on bees, as they do not require much skill or labor to produce or exhibit; but the premiums can not be too large on the best and largest displays of both comb and extracted honey. These displays not only attract more attention from the public, which is a prime object, but they show the taste and skill of the exhibitor, and require much more outlay of time, trouble, and expense, to properly prepare than do the other items of exhibit.

O. O. POPPLETON.

Dear friends, there is something a little sad to me in the above answers. The sad part is, that so many of our good, practical, expert honey-producers are not in the habit of attending fairs at all. Now, friends, perhaps nothing I can say will change your minds very much; but I want to have my say, notwithstanding. It may be true, that you do not enjoy going to fairs; and the very ones who say they do not go are the ones we need most. Go as a duty—a duty you owe to your fellow-men. You know that Jesus our Lord pleased not himself, and you also know that he once attended a wedding—yes, a regular oriental wedding, where they had music and dancing, and a good many other things that you and I, perhaps, would not care for. He went because, by so doing, he could meet the people and get acquainted with them, and he helped to make the occasion pleasant. Yes, he even furnished wine by a miracle when the supply gave out, and that of the very best kind too. I do not know whether he taught the people there or not—perhaps not. Now, you surely know that our fairs are kept up because of the educational facilities they furnish. They also enable manufacturers and producers to advertise their goods. This is all right, and, in fact, it is the proper and legitimate place to advertise. If a bee-keeper is so well off that he does not care to advertise, then let him go to help and encourage others. If the very friends who have said above they do not attend fairs would go, their influence would be powerful against lotteries, gambling, and, may be, objectionable horse-racing. Of late years I have felt that it was as much my duty to attend our county fair as to attend prayer-meeting and Sunday-school. There are a great many people I do not see at all, except at fairs. The county fair furnishes a wonderful opportunity for speaking words of encouragement, and perhaps to give counsel; and I tell you, friends, there is not one of us but can learn valuable lessons ourselves. For instance: Almost every season somebody wants basswood-trees before the usual time of taking them from the ground. I always tell folks they must wait until the leaves fall. Well, at our county fair last week I saw some beautiful nursery stock, taken up and packed, ready for shipment, just as we see them in the spring or later in the fall. I asked the nurseryman if the trees would not be killed or injured.

"Why, bless you, no. You see, we have pulled the leaves off. You can take up trees in August and September just as well as later, if you pull the leaves off when you take them from the ground. Had I left the leaves on these trees, the wood would be all shriveled up, instead of being plump and full as it is now."

This was entirely new to me; and so at every step, by talking with people, I got acquainted and gathered new ideas.

Now a word in regard to selling things. I think it is an accommodation all around to sell honey on the fairgrounds. It is the very best place in the world to correct popular fallacies. At the centennial now in session at Columbus, our thousand-dollar cards are making quite a stir and excitement. The great world at large still tries to stick to it that all the comb honey they see is manufactured. Where in the world can people be taught truth in place of harmful scandal as well as at the fairs? My good friend Hasty, before I got to your name I more than half suspected you were a "hostile Indian," as you express it; and I fear it may be out of my power to convince you that, by so doing, you are hostile to the cause of the Master whom I know you love. At our county fair, children would gather around me and look up wishfully, as if to inquire whether I was awful busy as usual, or whether it might be possible that it was a kind of Sunday-school or vacation time with me, and that may be I would talk with them. And I did talk, too, and the remembrance of their bright little faces, as they looked at me and smiled makes me happy yet. Why, dear friends, the very fact that children will go to fairs is reason enough why we ought to go. Go, and help them have fun. A week or two ago all the Sunday-schools of Medina had a great union picnic on our fairgrounds. I took the juveniles over to the carp-pond, to show them my fish; and there were so many of the children that they crowded up so close to me that I actually had to dig my fingers into the grass along the bank of the pond, to keep them from crowding me into the water. I taught them how to ride in Huber's little boat, and then I got into the boat myself, to make fun for them. I think I never got so really well acquainted with so many children in one day in my life. And this is exactly what we might do at our fairs. Oh! I wish it were possible for me to get hold of you, dear friends, and go with you to the nearest county fair, and show you how to make the children happy, if for no other reason. Then all you have to do is to consider all mankind as children of a larger growth—yourselves among the rest—and your case becomes hopeful. I like the idea of selling things on the fairground. Our little glass and tin honey-pails, both empty and filled, make lots of smiling faces, and open the way to getting acquainted with many a little one with whom you could not get to talk if it were not for these things that please children so much. Now, friends Hasty, Doolittle, Grimm, Elwood, Wilkin, France, Poppleton, Heddon, and I guess I had better include Dr. Miller also, won't you change your opinion just a little? Do you say you haven't time? One of these days, dear friends, you will have to take time to die; and what will it be worth to you at such a time, to remember the smiling faces of not only the children but of the grown-up ones whom you have met and cheered and encouraged at the county fairs? Compare this with the property and great possessions which you have accumulated and laid up, by strict adherence to *business*. What can all these things "profit a man" when he comes to die?

NOTES AND QUERIES.

BALL CLOVER.

IN GLEANINGS the word white clover is used often. Is it a ball clover, or is it what we call sweet clover, growing five or six feet high, and remaining in blossom till October? Bees in our locality are doing well. N. B. BALDWIN.

Elsinore, Utah.

[Friend B., the term "ball clover" is something we never heard of before. It must belong particularly to your locality. What we mean by white clover is a small clover with white blossoms, that grows spontaneously in almost every portion of the United States. It is only of late years that it has been saved, and has become an article of merchandise. The white Dutch clover is the same thing, with the exception of having a little larger leaf and blossoms. Some think, however, that this is due to soil and cultivation alone.]

WIRE CLOTH IN THE PLACE OF MATS.

How do you think this wire cloth that is used for window and door screens would answer for mats on bee-hives, for shutting the bees down in the brood-chamber? P. L. WILLIAMS.

Sharon, Pa., Aug. 18, 1888.

[It would very soon become filled with propolis, and be no better than any solid sheet, and, we very much doubt, if as good. We very much prefer enameled cloth in summer, and burlap in winter.]

COMBS TOO OLD AND BLACK.

When the combs become old and black, should they be removed and replaced with frames of foundation? I. D. LOUER.

Mound, O., Aug. 20, 1888.

[Leave the old combs in the hive, as we have recently advised in this department. Don't remove or destroy them simply because they are old. Combs have been in use as long as 20 years. While some think they will raise smaller bees, those bees will soon be just as large, if we are correct, as those raised in newly made combs.]

SOMETHING NOT SO FAVORABLE FOR THE WOOD SEPARATORS.

I used this season, in the T super, wooden separators, and I notice that the bees build brace combs to them. They have spoiled a large number of sections for me. Would they have done the same had these been tin instead of wood? J. MAJOR.

Cokeville, Pa., July 23, 1888.

[Friend M., we sometimes have the same kind of difficulty with tin separators, but I think not as frequently as with wood. Where the sections are very thick, say two inches or more, there seems to be more danger from these attachments than where they are of less width, say 1½ to 1¾ inches.]

HOW TO DRUM BEES OUT OF AN OLD BOX HIVE.

My father has 8 hives of bees in old box hives; and every fall, to get the honey, he kills them. I should like to know if I can drive the bees out without killing them, and put them in another hive.

Arden, N. Y., Aug. 1, 1888. J. G. EARL.

[Friend E., tell your father he does not need to kill the bees in order to get his honey. Every bee can be gotten out by inverting the hive and drumming lightly on its sides. In a short time the bees will run upward and crawl into a receptacle—a box, for instance, the proper size, provided for them. We would recommend you to read the subject of "Transferring," in the A B C book, which you have.]

TO ITALIANIZE.

Will you please tell me if I can Italianize by this plan? When a black swarm issues, catch the queen and give the new swarm an Italian queen when it returns (having removed the old hive), then cut out all of the queen-cells and give the old swarms a frame having Italian queen-cells. We have a fine Italian queen to raise queens from.

Swedona, Ill., July 9, 1888. S. F. TREGO.

[The plan you propose will work all right; only in the parent colony you must be sure that they do not raise more queen-cells from the eggs or larvæ of the small black queen.]

THE GOOSE THAT LAID THE GOLDEN EGG.

We have more bees than we want. We can not sell, and will brimstone them this fall, reserving the combs for next season's use. Would you extract the honey before using the combs? They are quite heavy. HALLETT & SON.

Galena, Ill., Aug. 17, 1888.

[We are sorry to hear, friends, that you have decided on going back to the old cruel plan of killing bees. Perhaps this notice will induce somebody who wishes bees to start, to give you a better price for them than you would realize by killing them, and thus benefit both parties in the transaction. I presume you would willingly sell them for about what the combs and the honey they contain are worth.]

CARNIOLANS; THEIR COLOR AND DISPOSITION.

Friend Root, will you be so kind as to inform me of your experience with Carniolan bees? Are they superior to Italians? Are they marked like Italians? Are they gentle? The untested queen I bought of you July 2d was received all right. The hive is now literally full of brood. Some are hatching daily, and prove to be pure Italians.

G. W. MCGUIRE.

Dark Ridge, N. C., July 31, 1888.

[We gave our experience with Carniolans a couple of years ago in GLEANINGS, and at that time it was not very favorable toward them. We tested the progeny of only one queen, however; we therefore do not regard our experience as of very much importance. We have no Carniolans now, but we will report on them later, as we expect to test them again. The bees resemble, somewhat, the common black bees. The bands are of a steel blue, and not black; the fuzz-bands are of a grayish color. They are said to be very gentle; but those we had were no more so than our average Italians. See letter of E. E. Ewing in this issue.]

PROXIMITY TO A RAILROAD NOT DETRIMENTAL.

Please tell me what you think as to winter disturbance in my case. I have located a new apiary within 50 yards of the railroad, over which 10 or 12 trains pass daily. I can notice the house trembling when all things are quiet, at night. A glass of water set upon a hive is set in motion. What will be the risk in wintering this apiary?

J. C. CAPEHART.

St. Albans, W. Va., Aug. 11, 1888.

[Although we have had a great many reports in regard to the proximity of an apiary to a railroad, we don't remember of having one where it was positively shown that such nearness was detrimental in any way to the bees, or that such bees do not winter as well as those more remote from the railroad. Our apiary of 250 colonies is within 200 feet of a railroad, with about 20 trains passing daily, and yet we believe we have wintered our bees just about as successfully as any bee-keepers in the country. Our loss for the last 6 or 7 years has not averaged more than about 3 or 4 per cent. We think you will incur no risk.]

REPORTS ENCOURAGING.

2100 POUNDS OF CHOICE HONEY.

I HAD 100 colonies in the spring; but before swarming time I sold so that I had 70 left, most of them in good condition. I have now 117 colonies, all in good condition to winter, most of them very heavy. I have taken up to date, 900 pounds of as fine white-clover comb honey as you ever saw, and 1200 pounds of choice white-clover extracted. It was not extracted until sealed over, which makes a much better article than if it had been extracted as the bees gather it. New honey is coming into the city quite freely, and, as usual, no price is set to govern the commission men. They are selling fine white honey, put up in fine cases, at 16 to 18 cents. It might, or ought to bring 20, and would if the parties sending would give the commission men instructions not to sell it for less. Quite a good deal is brought into Minneapolis by the farmers, or those who have a few colonies, and they usually take what the grocer wants to give them, which is usually 14 cents. WM. URIE.

Minneapolis, Minn., Aug. 24, 1888.

We are having a honey-flow here now—the usual September crop. B. F. A.

Middleton, Mass., Aug. 25, 1888.

We have a glorious and grand flow of honey now; and if frost doesn't strike us before the 25th, we shall have an immense crop of honey here.

Pana, Ill., Sept. 6, 1888. A. L. KLAR.

2000 LBS. OF HONEY, AND BEES DOING WELL.

We have taken in all this year 2000 lbs. of honey, and bees are doing well on buckwheat.

MRS. BELL L. DUNCAN.

Black Lick, Pa., Aug. 23, 1888.

1000 LBS. FROM POPLAR.

I have taken 1000 pounds of comb honey from 40 colonies, principally poplar honey. White clover and basswood gave almost nothing in this locality; good prospect for fall honey. JOHN MAJOR.

Cokeville, Pa., July 23, 1888.

My bees have done better this season than for several years. They have about stopped swarming. The last one came off Aug. 24th. There seems to be but little honey coming in now; none yet from buckwheat. E. G. HEDDING.

Paw Paw, W. Va., Aug. 28, 1888.

A GOOD AVERAGE YEAR IN NEW HAMPSHIRE.

New comb honey is selling at from 25 to 30 cents per pound; extracted, 25. I have secured about an average crop, but for our surplus we depend on the fall flow. I have taken 100 pounds of honey, and have trebled in colonies, having 34 stocks now. I consider it a good average year with me.

Rumney, N. H., July 24, 1888. G. J. HALL.

BEES BRINGING IN HONEY.

All hives, except a late swarm that came out Aug. 25, are in good condition. Hives are full of bees, and will average from five to eight frames of solid honey to the hive. Two-thirds of them are still rearing brood largely. Bees are busy from about 9 A. M. till dark, bringing in honey. I have taken from 15 to 28 pounds of comb honey from each original hive that I started the season with.

Pittsburg, Mich., Sept. 4, 1888. F. B. DAY.

MEDIUM CROP.

The honey yield in this section was about a medium crop. From 40 colonies, spring count, I got 1100 lbs. of comb honey in sections, and 400 lbs. of extracted, about half being quite dark.

Hannibal, O., Aug. 27, 1888. M. LUDTMAN.

SEASON FAIR.

The season for us here has been only fair—too much rain, we think. But as others write, we ought not to complain. In some locations here, first swarms have made 50 pounds of nice white comb honey. H. W. BASS.

Front Royal, Va., Aug. 27, 1888.

HONEY BY THE GALLON; THE SEASON THE BEST FOR YEARS.

So far as I have read in the bee-journals, the season has been very discouraging; but I am happy to say, that, with me, it has never been better. Honey has been coming in by the gallon, from clover. We have increased from 12 colonies, spring count, to 55 good strong colonies. The season has been the best for years. White clover is coming out on all spots. FRED LININGER.

Douglas, O., Aug. 29, 1888.

HOW MUCH HONEY DID DOOLITTLE GET?

I see by the Sept. 1st No. of GLEANINGS that friend Root is anxious to know if I have any honey this year. Yes, about half a crop, which is somewhere from 50 to 75 lbs. per colony, spring count, all comb honey. I have not extracted a drop this year. The queen business has so rushed me that I have had time only to *estimate* the honey crop, but will give a full report so all can know exactly what I have done, probably in Oct. 15th, or Nov. 1st GLEANINGS. G. M. DOOLITTLE.

Borodino, N. Y.

NINETY-THREE DOLLARS FROM 14 COLONIES.

I herewith submit my first report from this part of the State which you hear so little about; for really it seems that I have this county almost to myself in the way of keeping bees by the improved method. Indeed, when I take my honey to market I am put to some pretty close questioning, whether I hadn't a machine to make it artificially, as they couldn't believe bees could be made to put up genuine honey so nice. So much for the reports the grocer gets in papers about manufactured honey. Well, here is a true statement for the consideration of all parties concerned, as taken from an account book:

I wintered 18 colonies in all, mostly in good condition; doubled down to 16. Two have made nothing yet. From 14 I have sold $93.00 worth, besides what we have used and given away. I have on hand 116 lbs., besides what may come off in the way of partly filled sections. Bees are flying, and working apparently as strong and vigorously as in June or July. There have been no swarms this summer to bother. I cut the drones out early, and kept down the fever.

There is beginning now to be considerable inquiry by the old bucket and crock bee-men as to how I get my honey. It makes me tired to still hear them talk about the king-bee.

I am still faithful to my tobacco pledge, even if I did let GLEANINGS stop for awhile, and hear nothing of you for a year or two. S. DANIELS.

Pine Grove, O., Aug. 1, 1888.

HONEY COMING IN.

My bees are booming at present on white clover, buckwheat, and smartweed. They barely made a living this summer. I had to feed some of the young swarms, and those that I fed a few times have swarmed again this week. You may know they are booming, or they would not swarm. The season here has been about as Mrs. Chaddock stated in Aug. 1st GLEANINGS. I hope her bees are earning their board now. She may yet have more honey than she and her family can eat. Several of my neighbors report their bees swarming. We have been having very warm weather lately. The thermometer stood at 108 the 31st of July.

Henton, Ill., Aug. 4, 1888. F. P. HISH.

REPORTS DISCOURAGING.

"TO FEED OR NOT TO FEED."

FRIEND ROOT: — Here goes for "Blasted Hopes." Forty good colonies, spring count, increased to fifty, have yielded just about 100 pounds of surplus honey. Last season was one of the poorest I had seen, and it surely did not pay me to feed them last fall, when they failed to give me in return one-half as many pounds of honey as I had loaned(?) them pounds of sugar! But the end is not yet. What do I want with 50 colonies of bees in a starving condition? How many barrels of sugar must I buy to winter them? Will it pay? "To feed or not to feed," that is the question.

I *did* want to go to Columbus, but it looks now as if I should have to wait until the next centennial. Or, say, how many pounds of sugar will you trade me on 50 pounds of bees, the sugar to be fed now, and the bees delivered next June? If we can strike up a trade, and I can sell several colonies yet to some "greenhorn," "cheap for cash," I'll go to Columbus in spite of the bees; but if this plan won't work, I guess I must try Mrs. Chaddock's plan, and "hunt around for some one who will take bees as a gift." S. P. YODER.

East Lewistown, O.

Why, friend Y., we would feed, by all means. The bees next season may pay for the feed this season and last season several times. A correspondent in the Kind Words department (Mr. Byron Benton) takes a happy view of the case, and remarks thus: "We do not get any honey from our bees, to pay; but, like fishing, we keep on hoping, in time, to catch a whopper." As to the amount of feed, from 12 to 15 lbs. of syrup for the average colony will be enough in your locality. It will be a very easy matter for you to tell the amount of sugar you will have to buy. We make the syrup to the consistency of about 25 lbs. of sugar to a gallon of water.

ABOUT HALF A CROP.

The honey statistics will prove to be of great benefit to honey-producers. Our crop is about 50 per cent, all extracted, from 129 colonies. We are retailing extracted at 10 cts. This is a poor season with us. E. M. WOOLVER.

Richfield Spa, N. Y., Aug. 7, 1888.

Bees have gathered only their living since July 12.

Walpole, N. H., Aug. 27, 1888. J. L. HUBBARD.

A POOR SEASON.

It was a very poor honey season in this vicinity. Two years ago we got a ton of nice comb honey from 30 colonies, and this year about 200 lbs. of clover from the same number. Goldenrod is just opening, and seems to be yielding some honey.

East Auburn, Maine. MRS. S. H. STOCKMAN.

VERY POOR.

Bees have done very poorly. I have 140 colonies, but shall not have over 500 lbs. of light honey. Bees are just commencing to work on buckwheat. I am looking for a crop of dark honey yet, if the weather holds good. J. LINGENFELTER.

Akin, N. Y., Aug. 8, 1888.

A PECULIAR SEASON.

This surely is a peculiar season for bees. Ten acres white with buckwheat flowers here at home, now for a week, and bees just getting a living; but we hope for more honey soon. Our hives are empty—that is, no honey, and it will take at least 6000 lbs. to winter and spring them. But God is able to do for us what he has in the past, and will if we trust him. We are feeding Timber apiary still.

Roseville, Ill., Aug. 23, 1888. MRS. L. C. AXTELL.

NO SURPLUS.

My bees made no surplus this year, and I am afraid but little honey for themselves. From the outlook of the season, do you think I shall be obliged to feed? If so, when had I better begin? Can they yet gather sufficient for wintering?

Salem, O., Aug. 28, 1888. DR. CHAS. ORR.

If you do not get any fall honey, you will probably have to feed some. If no honey has come yet, do not delay feeding, on the mere probability of the bees getting their own natural stores. It is safer to begin feeding right away.

NO SURPLUS FOR TWO SEASONS.

I have kept bees for 11 years; have now 17 colonies, and have had 30. Last year I obtained no surplus honey in the sections. I was obliged to feed my bees to keep them through the winter. This season I do not expect to get any surplus honey. I think I shall have to feed them. The white clover last year was a failure. It appeared to have been killed out. There has been a new growth this season, and these rains lately may make it bloom some before frost comes. There may be some hope then. If bees could work on red clover with success, it would be a gain. I had no swarms last season nor this season. In this the bees have acted wisely. J. HUNT.

Plain City, O., Sept. 8, 1888.

VERY DISCOURAGING FOR NEW YORK.

I have been over considerable territory in this State, and visited some large apiaries. I find the prospect poor for a good honey crop. Basswood has not yielded any thing to speak of; and as there has yet been no honey removed from the hives, nor any ready, the crop of white honey will be almost a total failure. All that is depended on now will be from buckwheat; and if we have an unfavorable August there will be a discouraged lot of bee-keepers in New York. The season was cold and wet up till July, and now it is dry and very cold nights. I hope to get a good crop of honey yet. I have over 200 colonies, 125 Italians; the rest are blacks. The blacks are doing nothing, while the Italians are storing from red clover. F. BOOMHOWER.

Gallupville, N. Y., July 22, 1888.

STRIKING FOR HIGHER WAGES.

Bees are hardly earning a living—working on weeds growing along the banks of the creek, mostly. I fear we shall not average 8 lbs. per colony, take the whole neighborhood through.

Oh for a good long rain! We had the tail end of a shower last Tuesday, July 31, but it brightened things up for only a day or two. But during that time the bees put in a "full" day's work each day. The continued drouth of the last few years has greatly thinned out the white clover; and as this is our main stay, the bees seem to have become discouraged—"struck for higher wages." Well, I guess they won't get it this year. I expect to feed this fall. Now, don't put me in Reports Discouraging, for I am not discouraged. I expect a good run next year, and I have found that it is the stick-to-its that generally "get there."

WILLIS M. BARNUM.

Angelica, N. Y., Aug. 4, 1888.

We are glad to know *you* are not discouraged; but as your *report* is discouraging, we could hardly put it among the *en*-couraging reports.

THE POOREST SEASON EVER KNOWN.

My man has been over the bees, and thinks we shall have 2000 lbs. of nice honey. Judging from the general reports received from all over the country, we must call this season's crop the poorest ever known. W. H. SHANE.

Chatham Center, O., Aug. 8, 1888.

I will explain to our readers, that friend Shane is the man who always produces a crop of honey, no matter whether the season is good, bad, or indifferent; and even during this season, when no one else has succeeded at all, friend Shane secures 2000 pounds. We have purchased the honey, and it now stands piled up in our building. If friend S. calls it the poorest season, we think there can not be much mistake about it.

BEE BOTANY,

OR, HONEY-PLANTS TO BE NAMED.

G. W. PARK, Columbia, Texas, asks me to name in GLEANINGS a plant—a vine—which he says blooms twice a year—once in March, and again in August. He says it is common in Texas, and yields very abundantly of honey.

This plant is not sarsaparilla, but a Southern species of grape—*Vitis bipinnata*. We have it on our grounds, but it kills down each year, and does not blossom. The honey which Mr. Park sends me seems very fine. I wish to thank Mr. Park and several others for samples of honey. A. J. COOK.

Agricultural College, Mich.

Mr. W. C. Morrison, Alvinston, Ontario, sends two plants for name. One is a fireweed of the great composite order, which includes asters, bonesets, goldenrods, etc. Too small a piece was sent to exactly determine the species. The other plant is a vervain (*Verbena hastata*). This blue vervain, as well as the white and hairy (*V. urticifolia* and *V. stricta*) are all excellent honey-plants. I mention all of these in my Bee-Keeper's Guide.

Agricultural College, Mich. A. J. COOK.

JUVENILE DEPARTMENT

Every boy or girl, under 15 years of age, who writes a letter for this department, CONTAINING SOME VALUABLE FACT, NOT GENERALLY KNOWN, ON BEES OR OTHER MATTERS, will receive one of David Cook's excellent five-cent Sunday-school books. Many of these books contain the same matter that you find in Sunday-school books costing from $1.00 to $1.50. If you have had one or more books, give us the names that we may not send the same twice. We have now in stock six different books, as follows; viz.: Sheer Off, Silver Keys, The Giant-Killer; or, The Roby Family, Rescued from Egypt, Pilgrim's Progress, and Ten Nights in a Bar-Room. We have also Our Homes, Part I., and Our Homes, Part II. Besides the above books, you may have a photograph of our old house apiary, and a photograph of our own apiary, both taken a great many years ago. In the former is a picture of Novice, Blue Eyes, and Caddy, and a glimpse of Ernest. We have also some pretty little colored pictures of birds, fruits, flowers, etc., suitable for framing. You can have your choice of any one of the above pictures or books for every letter that gives us some valuable piece of information.

CONDUCTED BY ERNEST R. ROOT.

IT seems you didn't write very much on the subject of robbing, in this issue, did you? I suppose the principal reason is because you have not got around to it yet. You surely have had some experience in this sort of thing, but perhaps your papa is a careful bee-keeper and doesn't allow it to happen. Suppose you tell us, then, how he prevents it. It is also time now for feeding, and I suspect there will have to be a good deal of it done this fall in some localities. Tell also how you feed. Figure up how much the syrup costs a pound, and how much it will cost to winter a colony.

You did nicely on the subject of swarming; and although little folks are not supposed to tell any thing that the older folks did not know before, you did, nevertheless, give us quite a number of valuable hints. Now, for the present let us drop swarming until next year and take up the subject mentioned above. Of course, you understand that, when you write upon the subjects called for, giving useful information, you will be entitled to any mailable article on the 5-cent counter, mentioned in the price list, which we send free to boys and girls who ask for them.

HIVING SWARMS.

My papa sits down beside the hives and catches the queen, and gets a cage and puts her in it. He then gets a hive as much like the old one as he can, and puts the queen and the cage down by the entrance, and then the bees go in all right.

Goshen, Mo., July 7, 1888. GUSSIE GEARHART.

HOW WALTER HIVED A SWARM.

I will tell you how I hived a swarm of bees. I was left in charge of the bees one Sunday this summer, and a swarm came out. It fell to my lot to hive them. They settled on a peach-tree. I placed a table under them and a hive on the table, and took the smoker and smoked them. I then shook them down, and they went in nicely.

WALTER NORRIS.

Buntyn, Tenn., July 24, 1888.

BEES GETTING CAUGHT ON THE MILKWEED, AND DYING.

My papa has been keeping bees three years. He has 47 colonies. They wintered nicely. The pollen they are gathering is a light yellow. The bees gather honey from the milkweed. It is a large pinkish flower, round like a ball. The bees get caught fast in the little blossoms, and die. Mamma hives the bees when papa is gone, and I help her. If the bees alight down low, mamma shakes them down on a cloth in front of the hive, and they go in. If they are high up we have a hiving-box to take them down with. AUG. MALLOW, age 13.

Fort Jones, Cal., Aug. 4, 1888.

Thanks, friend Augustus. You will see, by the subject of "Milkweed," in the A B C of Bee Culture, that a peculiar kind of pollen clings to the legs of the bees, resulting in the death of the bee.

USING SMALL CEDARS FOR PLACES OF CLUSTERING.

The way my pa gets the swarms is this: We go to a bush and get a lot of small cedar-trees, about six feet high. We cut them off at the root and trim the limbs off about three or four feet, and set them in the ground. When the swarm is settled on it pa can pull it up and shake them into the hive, and set the bush down again. When one swarm is out, and another wants to come out, we sprinkle the front of the hive with water. That keeps them in. Pa has 64 swarms. We have had no bees swarm this year. We have very little honey.

Lorraine, Ont., Can. C. E. CHRISTIAN.

Friend Christian, we don't quite understand what you mean by setting out small cedar-trees. Do you mean that you actually plant them, so that they grow and thrive, and that, after a swarm has clustered, you pull them up, swarm and all? It is said, bees have a preference for certain kinds of shrubbery on which to cluster, but we are not so sure of it. We presume the bees will cluster upon the cedars, providing there is no other place for them. You may, perhaps, remember that we have a row of evergreens outskirting our apiary, and, as a general rule, bees cluster on the evergreens rather than among the grapevines among the hives.

A SWARM THAT MADE "SUCH A FUNNY NOISE."

My pa has had bees two years this summer. We take GLEANINGS, and we think it is a good paper. We had a swarm of bees that made a noise that sounded like a fine whistle; sometimes it sounded like a coarse whistle, and sometimes it sounded like a hen. It was such a funny noise that I can not describe it very well. You must think for yourself. We got about 155 lbs. of honey from the top of three hives, in sections. We have 55 colonies of bees. I like to help pa take out honey.

Mears, Mich. MAGGIE JOHNSON.

Very good, friend Maggie; but we must confess that it is very hard for us to imagine what kind of a noise that swarm made. It must have been a remarkable one indeed that uttered a note that resembled the sound of a sharp whistle, a coarse whistle, and finally one like a hen. Come to think of it, the noise which a swarm makes when it issues does somewhat resemble the noise of a distant steamboat whistle. By referring to the map we see you are located on or near Lake Michigan, and you doubtless know what coarse and sharp whistles sound like. It is pretty hard for us to imagine, however, that the noise would resemble that of a smart hen that, perhaps, is just announcing to the world at large that a new-laid treasure may be found in the barn. We can not dispute you, however, for perhaps you are right.

"THAT LITTLE GIRL" DOWN IN MASSACHUSETTS.

It has been some time since you heard from me, and I suppose by this time you are thinking of that little girl in Massachusetts. My pa keeps an experimental apiary. This year he has taken three of his hives six miles from home. The bees got no honey from apple-blossoms, on account of the weather being wet and cold; but since then they have done very well. From the three hives out of town he has taken 102 lbs. of comb honey; last week, and two days this week, they filled 21 one-pound boxes, and had commenced to seal it up. From basswood, in the city here, bees have made quite a feast. We had very good weather while they were in bloom, and they were as happy as a bee could be. We have quite a number of them used for shade-trees on the street. They are not in bloom now. It is vacation, and I have lots of time to watch the bees. My school begins the first Tuesday in September. FLOSSIE J. ELDRIDGE.

New Bedford, Mass., July 27, 1888.

Thank you, friend Flossie. We did not just remember the little girl down in Massachusetts at first, but we do now. The family of children in this Juvenile Department has now become so large that it is getting to be pretty hard to remember that one lives in Massachusetts, another in Louisiana, one in California, or another in the good old State of Ohio. But it does not make any difference whether we remember you or not. We are glad to hear from all the little folks whose papas keep bees.

FERTILE WORKERS.

Papa had 29 swarms of bees last fall. One colony died, and in the spring two of them were robbed; and in looking over the bees he found he had one colony with fertile workers. The first remedy he tried was to put in two frames of brood, and in a few days he put in a queen-cell, but they destroyed it. Then he tried moving the combs into another hive, but they all stayed in the hive he put them into, instead of going back to the old hive. Then he tried putting a new swarm in with those remaining in the old hive, and they killed all the old bees. Since then he has given those that he put in the other hive a queen in a queen-cage, sealed up with wax, and they have gnawed her out, but still he finds eggs from the fertile workers there. Papa says he has given those fertile workers two queens and four queen-cells, and has left the queen-cages corked up several days before he stopped them up with wax. Papa has had but three new swarms of bees this summer. He had one swarm that, the first time he looked at it after they swarmed, had not gathered a drop of honey, and so he gave them three or four pounds because there was a scarcity of honey; then he gave them a frame of brood, both unsealed and sealed, with about two pounds of honey in it. They ate that all up; he had a comb break down, and that had about 4 lbs. in it. They ate that, and then, although there was a flow of honey, nearly all of them starved. Papa has taken off 269 lbs. of honey this year. One swarm has made 56 lbs. of honey this year.

CLARA LINDSEY, age 12.

Harford, Pa., July 7, 1888.

Thank you, friend Clara. We do not often get fertile workers. When we do, we don't think it best to fuss with them very much. Our method is to scatter the brood and bees among several strong colonies—one frame in each colony. It rarely fails when good brood is put in the hive from which the worker brood is taken. Fertile workers are much more apt to manifest themselves among Holy-Land bees than among Italians. In fact, it is a characteristic of the Eastern bees to run to fertile workers when they have been queenless but a short time.

HOW EUGENIA HIVED TWO SWARMS.

My mamma started with five colonies this spring, and has increased to thirteen. Mamma and papa were away from home twice when the bees swarmed, and my brother and I had to hive them. The first swarm settled on a tree-top which had been sawn off, and was lying on the ground near the hives. We took the hive and placed it under the swarm, and shook the bees in the top of the hive; and when they had all gone in we carried the hive to where it was to stay. It was an after-swarm. Mamma, in cutting out the queen-cells, overlooked one. We hived them on frames with starters, and they built all worker comb.

The next swarm settled in a tree, so I could almost reach it. I stood on a bench, and they held the hive on one arm and shook the bees in the top with the other hand. Some fell outside the hive, and settled back on the tree. I placed the hive on the bench and covered it to keep the bees from coming out. Then I took a tin pan, shook the bees into it that had settled again, and covered it and carried to the entrance of the hive, and slipped the cover a little to one side and let the bees run in. About four hours after we had hived them they came out again and settled in the same place. The hive had no comb in it, so I put in a piece with honey on it, and held the limb while my brother sawed it off. I then carried it to the hive and shook the bees in, and they did not come out again. Two of the swarms that came out in May have each cast a swarm. We take GLEANINGS, and like it very much.

EUGENIA READER, age 14.

Lynnhaven, Va., July 27, 1888.

NO SWARMING-BOXES, BUT LETS THE BEES CLUSTER.

Swarming is about over with us here. Pa does not clip his queens' wings, and he does not use swarming-boxes. When they swarm we just let them settle; and if they settle on a low tree or bush we place a table under them. On this we set a hive and spread a paper in front of it. We then shake the bees on it, and they go in very pretty. Sometimes they settle on a high tree. Pa climbs up to them and saws the limb in two, and ties a rope to it and lets them down. One swarm came to us and went into some hives that we stacked up in the barn, and they went right to work. Our bees are mostly Cyprians.

ROBERT MORROW.

Dripping Springs, Texas, June 23, 1888.

MY EXTRA EIGHT PAGES.

SPECIAL DEPARTMENT FOR A. I. ROOT, AND HIS FRIENDS WHO LOVE TO RAISE CROPS.

YOU may remember that I said last month we would have eight extra pages in this issue. Now, I do not mean to occupy these whole eight pages myself, but it is to be for the friends who have written on the subject of raising crops, and articles that we have been holding for a place. I do not like to take much space in a bee-journal, because I fear there may be quite a number of the friends who may not be interested enough in this line of business; therefore we give you as much on bees as usual, and these eight pages extra.

The first topic under consideration will be canning green corn. I know it is late in the season; but while the matter is fresh in our minds it may be best to get ready for another season if we are not in time this. As for ourselves, our Mammoth sweet corn is now just in its prime; and one field of Corey's extra-early corn is just now making ears, and showing silk. It was planted July 12. I mention this so you may know how late you can plant sweet corn, and get corn for table use before frost.

CANNING SWEET CORN; CAN IT BE DONE SAFELY AT HOME, ON A SMALL SCALE?

Friend Root:—I am glad that I can differ with you for once. You say to J. A. Dillehay, "There is not any way to can corn so it will keep, outside of a regular canning-factory." We keep it better than factory corn.

RECIPE.

Cut the corn from cob; fill into quart cans (we use Mason's), pressing it in very tight with a smooth stick (a cob will do); make it very full; fasten the lid on as tight as you can, with thumb and finger. Put three or four inches of hay in a wash-boiler, and a little at the sides. Put your cans in and fill with cold water; heat to boiling, and boil for three hours; then remove and fasten lids as tight as possible.

Please try this; and if you do not have the best corn next spring you ever ate, you will not have succeeded as well as we do.

B. OSBURN.

Irvington, Ind.

Friend O., at our county fair (here is another reason for attending fairs) last week there were on exhibition cans of green corn and tomatoes mixed. They were canned in the ordinary way, just as we can tomatoes, and they kept perfectly the whole year. It has been suggested that the acid of the tomatoes furnishes just the acid that the corn needs to keep it from fermenting. We are going to put up a lot to-day, and will report. While we are on the subject of tomatoes, here is something else from an old bee-friend:

Friend Root:—If you have never tried it, please take a "sharp knife" and gather a few choice Mikado tomatoes, leaving ¾ inch of stem. Be careful not to break the skin; gather before they get over-ripe; take a two or three gallon jar, put in an inch of salt, then place a layer of tomatoes stems down; cover with salt, and so on till filled, being careful not to let the fruit touch. Tie an oiled paper over the jar and set in a dry place. Open them next Christmas for dinner. M. A. Gill.

Fountainhead, Tenn., Sept. 7, 1888.

Thanks, friend G., but I do not just see why you emphasize "sharp knife." Perhaps the stem needs to be cut smooth, and without bruising. It has been lately suggested that green corn may be kept in the same way, simply with salt and nothing else. With the green corn, however, the moisture furnishes enough water to make a brine, or pickle; but the tomatoes, if not bruised at all, would be dry, as I understand it. Perhaps the salt preserves them by absorbing all the moisture, and partially keeps away the air. By the way, we have just found two Mikado tomato-vines that bore a *heaping peck basket* from each vine, *at one picking*. Is there another tomato known that will do this?

POISONING FROM EATING CANNED GOODS.

In regard to your comments on the above subject, in the issue of Aug. 15, I wish to say I have heard dozens of times of people being poisoned by canned goods, and had one serious personal experience. Traveling in Florida several years ago I found it a universal custom to pare off a half-inch slice of the top of the canned beef (a great deal of which is consumed in that State) before eating it. They said it was to get rid of the poisonous acids used in soldering the cans. The personal experience alluded to was in eating a can of California fruit. It was what was sold for a two-pound can. Three of us, a traveling companion, a daughter, and myself, each after eating but a small quantity became nauseated, and in a few hours had violent pains in the stomach and bowels; and in the case of the daughter, who was left at her boarding-school, I think a doctor was called. This was a plain case of poisoning, and no "sensational scare" about it nor "overdose of quantity eaten," nor "adulteration of the article of food," nor "intentional on the part of the canner," but it was absolute poison all the same. It might have been the metal on the cans, or the acids used in soldering the cans; but it is undoubtedly a common thing, or was three or four years ago, to be poisoned by eating canned goods. A Methodist preacher once told me that he and several other ministers traveling together by private conveyance were seriously poisoned by eating canned ham. So, friend Root, you may be too hasty in saying that you "have for a long time been satisfied that most of the talk about poison in canned goods was more of a sensational scare than any thing else." J. L. Caldwell.

Mart, Texas.

Thanks, friend C. Since my remarks to which you allude, several things have been brought to light. I want to say first, however, that we might hear of things dozens of times, and yet there be no truth in them at all. In regard to canned beef, there have been several distressing cases in our own town, resulting from it. My impression is, however, that it is not the acids used in canning, but that the beef is spoiled. Spoiled meat, under certain circumstances, is a virulent poison. Our dairy journals have something similar in regard to poison cheese, and a good deal of sickness has been caused in our own State from this cause. The best authorities, however, have decided that it all comes from poor management in making cheese. A kind of fermentation is allowed to take place, that changes the cheese or meat or other kind of food to a deadly poison. In our own town a can of spoiled oysters killed one person, gave another a lingering fit of sickness that lasted for years, and gave a third one, who ate more sparingly, an experience that she will remember for a lifetime. The whole trouble is from filthiness (I think that is the correct term) in making the cheese, or in putting up the canned goods. We are just now putting up tomatoes in tin cans. The cans are soldered with rosin and nothing else till it comes to putting the cap on. Then they use a soldering-fluid, such as we describe in the A B C book under the head of "Soldering." I asked why they did not use rosin for putting on the caps also. The reply was, that it is very difficult to get them on perfectly air-tight, after the fruit is in, without the use of acid. Recently a substitute for this acid has been extensively used. The manufacturers claim that it will not rust metals, and is not poison on food. I dipped my finger into it and placed it on my tongue, and I am sure it is still poisonous if used with heedless lavishness. In canning our tomatoes, I noticed that the man who did the soldering put enough on one can to solder securely a whole dozen cans. I remonstrated at once, and showed him that the smallest fraction of a drop was just as good as a whole drop. Now, very likely this kind of work has something to do with the necessity of throwing away half an inch of good meat on top of the can. I wish that canning-factories could be carefully inspected by an inspector appointed by the State; and my impression is, that the inspector ought to get around once a week or oftener. I do not believe there is any trouble in using canned goods put up by an experienced and reliable institution. Now, friend C., I believe it is true, as you suggest, that of late years these things have been greatly improved; but it behooves us to keep a careful watch of these things even yet. If the acid used in soldering has been put on lavishly, you can easily detect it by touching your tongue to the inside of the cap, after the can has been cut open. If you once get a little soldering-fluid on your tongue, you will know the taste ever afterward.

And here is another friend who wants a little instruction about canning:

Friend Root:—Will you please tell me how you can tomatoes, to make them keep? I put up 40 cans last year, and 20 of them soured. Jacob Vaughn.

Monroe Corner, N. J. Sept., 6, 1888.

Friend V., you have certainly been careless. Putting up tomatoes is the easiest thing in the world, if you only get a right understanding of the matter to start with. It does not make any difference whether you use glass cans or tin cans. The first thing to do is to get all the air out of your cans by crowding them full of fruit. Pour off the juice, and squeeze the tomatoes into the can until it is completely full and pressed down; then you are ready to expel the air that may be held mechanically through the fruit, by boiling. Heat the can and contents boiling hot—so hot that every part of the interior of the can is filled with steam. This steam expels the air. You must now put on your cap, or lid, and seal it up while it is boiling hot and full of steam; and if you wish to move the cans to a table while you put the caps on, this table must be near the stove, and the caps must be put on one at a time, just as often as the cans are taken from the boiling water. If glass cans are used, you must be sure that the rubbers are in place, and then screw the caps down with a wrench. When the cans get cold, fit on your wrench and tighten them still more. With tin cans it is customary to fill the can with fruit, and solder on the tin cap, then prick an awl-hole in the center. Now put them all into boiling water, and boil them about 15 minutes; then while they are still boiling hot and steaming, let a drop of solder close the prick-hole. For further security they are generally put back in and boiled an hour more. Now, just remember that your cans must be full, so there will be no possible chance for a bit of air. Secondly, the caps must be put on and made tight when every thing is made boiling hot. I once heard of a woman who complained that her fruit did not keep. When questioned closely she said the cans did not seem quite full, and so she unscrewed the caps after they got cold, and put in some more fruit, and filled them up. The poor woman had not even the faintest glimpse of the philosophy of canning fruit by expelling air by steam, and then keeping it out.

MORE ABOUT CANNING CORN.

Friend Root:—My wife cans corn every year, and has no more trouble from its spoiling than she has with tomatoes or any thing else. This is her method:

Cut the corn from the cob and pack it in the cans, filling them full; screw the cap on just enough to hold; put the cans in a kettle of water, with a thin board under them, and boil for 1½ hours. Have the water come nearly up to the ring of the cans. Then take them out and wipe the covers and cans clean; put the covers back on, and screw them down tight. Boil again for one and a half hours. When taking out, try to give the covers another turn, to make sure they are on as tight as can be. Peas can be canned in the same way, without using acid or pickle of any kind. My wife and her friends have been using the above method for years.

JOHN S. SNEARLY.

Williamsville, N. Y., Aug. 27, 1888.

In the above process the cap is screwed down only tight enough to keep the air out, but still permit the steam to force itself out when the pressure becomes sufficient. I do not quite see the philosophy of taking the cans out and moving the covers. I think I should prefer to risk them by simply turning the covers down tight, after boiling for an hour and a half; then boil again, and, when finished, put on the wrench and turn down the caps until no air can possibly get back into the corn. Did any one ever know of cans bursting under this treatment? The pressure of the steam must be considerable during the last boiling; but as the cans are in an open vessel, the temperature can not get very much above 212°, and any fruit-can would stand this pressure unless it has a flaw or crack. It seems from the above methods that the corn needs boiling a good deal longer than tomatoes and other fruits.

GOD'S GIFTS, ETC.

Friend Root:—Since reading Terry's article on strawberries, I have been more interested than ever. Well, I've grown them for 25 years, as well as other fruits, and I can indorse all he says. But he hasn't got it all yet. You know there are a great many new sorts coming out; but, like other things, there is a great difference. The old Wilson is one of the best in all but one respect—it fails in growth of plant more than some, yet you use one of these to eight or ten Crescent Seedlings, and I am sure you and friend T. will have to lie awake more than ever with excitement. Now for an experiment.

I set a little bed on graveled cranberry land, where ice and water stand five months, and, to my joy, I had some of the finest fruit ever seen. The coarse sand keeps it from hardening, as it is quite damp all the season, and you see it is so moist that the fruit must keep plump. The dressing was only phosphate, a good coat just before a rain; the plants were set the 15th of August, 1887. I wish you could see the old bed now. As soon as the fruit is off I cut off about one-half the old leaves, and dress and work over the old bed. Now, we can save or lose a great deal with plants if we take no thought, as they grow out faster than we often wish, and yet we desire to save them, and yet keep them within bounds, instead of cutting them off. When they have set a small plant, just twine them around to the old plant and jam them down, and press a little soil on, or a stone, if there are any. In this way you have a wonderful hill, and you see there is no waste or loss of growth; but if we cut these off after (even if a small plant has started), it is a big draft on the old plant, and a dead loss; and, too, these very plants give us loads of fruit next season. One who never tried it doesn't know how soon a little layered plant will root and grow. I would say, if a runner has started beyond the little plant, nip it off, and so on. What we hard-working people want is to save these seemingly little things, and, too, all the work not needed. I save time of my own, and land too, in this way.

I set a piece to blackberries, seven feet each way. This came in full fruit the third year. I set a full row of strawberries between one way, and two or three plants between the next hill, and so on. In this way I lose no time, and can cultivate it all at once. The second year we get a full crop of strawberries, and, for the fun of it, you can let a few grow in under the blackberry bushes, and see how much later you can have them. One year I had some two weeks out of season. There they were in the shade, and, for that purpose, the Sharpless is a daisy.

I think if we can be happy in any work it is in gardening; and, when we get so interested, we roll up our sleeves and sharpen up the hoe and keep at the weeds frequently. I sold 1600 quarts off from less than half an acre one year, and had apple-trees and blackberries on the same land. "She" and I picked them all. Let me say, it pays to sort them, and use the small ones, or sell as No. 2, same as with apples. I got this year 15 cents at wholesale and a team came one mile to the house and got them.

Mulch is indispensable for strawberries; and a good rule is, put on enough to just hide the plants; and while some say apply it when the soil is well frozen, *I* say, as soon as hard frosts appear, or before the leaves are cut badly by it. The greener the leaves are kept, the better the result. Instead of removing this mulch I just work among it with a little sharp hoe; and, my word for it, it will pay three times all the bother. We need care as to mulch. If we use late-cut hay we shall have lots of grass and weeds. Straw is good; and if piled up ahead, and decayed a little it will work better in hoeing.

I wish to urge one point: Where you have not many stones, you don't know how much easier you can work, if you have not kept a file in the field to sharpen the hoe often with. Try it. If the hoe stands out much, sharpen mostly on the outside; if not, the inside. Keep it thin, also, or on a wide bevel. A little scuffle hoe is far better than a common one for many uses.

I find it is best not to get soil on the leaves while wet.

Why I say more of the Crescent than of the Wilson is, the former is the pistillate sort, and the latter is perfect. The cross is one of the best. The Crescent is the rankest grower of any, and the freest from rust, and one of the firmest and best to hull.

ABOUT BEES.

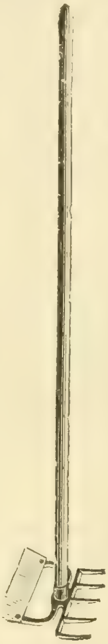
Just a word. I have been for a long time trying to get rid of so much sticking and snapping of hives and cases where they come together. I keep a piece of chalk around with me in the bee-yard. Just rub it on the edges where they come together, and it is grand; or one can use whiting, with a paint-brush. Many queens are balled and killed by these sudden shocks, yet we think but little about it and wonder why so many queens fail.

I love the garden and all of God's gifts.

Hallowell, Me., Aug. 22, 1888. E. P. CHURCHILL.

Thanks for your hints, friend C. I am afraid, however, if we should try to put all the little plants close by the parent plants, as you suggest, there would be altogether too many in one place during the fore part of the season. Where we wish to get plants for sale, and for our own use, we set our strawberries in rows 3 feet apart and 18 inches apart in the row. As we are in a hurry to get little plants, we take the runners as they come out, and spread them out like the spokes of a wheel, laying a lump of dirt on each runner as soon as it commences to start a little plant. At this date, September 12, the ground between the rows (in rows three feet wide) is a perfect swamp of great strong healthy plants. In fact, they are so close together we can hardly set our transplanting-tubes over them without getting more than one inside of the tube. Plants that were taken up a month ago with the transplanting-tubes have now sent out runners that have already rooted sufficiently to make strong healthy plants. Could this be accomplished by any other method than by the use of the transplanting-tubes? With a strong-growing plant like the Sharpless or the Jessie, I believe I could, from one plant, produce a thousand in a single season. If somebody has a very valuable, high-priced strawberry that he would like to have multiplied rapidly, I should like to try my hand at it with the transplanting-tubes. Give me one strong healthy plant in the spring, and I think I can make it cover pretty well a quarter of an acre in one season, especially if we have such abundant rains as we have had during the present season.

In regard to the use of hoes, we have found the scuffle hoe a very great help, and we also think a great deal of what we call the six-tooth rake hoe. See cut adjoining.



For loosening the ground, we use the rake side; but for cutting up weeds we turn the other. It has a thin steel blade, made very sharp, and so narrow that the dirt readily slides right over it, much as it does with the scuffle hoe. The labor of using it is much less, and you avoid moving the dirt when you do not want it moved, as is the case with the common hoe. Sometimes our men go out into the fields with the old-fashioned hoe, instead of these new light rake hoes; and I have often thought that using the wrong tool for one single day results in a loss of nearly half the cost of the rake hoe. These latter can now be bought for 50 cents, all made of finely tempered steel. By all means keep your tools sharp, friend C.—In regard to mulch, I entirely agree with you, that the more green leaves we can keep on our plants over winter, the further along they will be in the spring. Be careful, however, that your mulch contain no weed seeds. Clean oat straw is safest with us. If any grains of oats are left in the straw, the frost kills them before they can do much harm.

TURNIPS THAT CAN STAND OUTDOORS ALL WINTER, ETC.

Friend Root:—I see you are in the turnip-growing and seed business. I, too, do a little at it; and as it is now turnip-planting time, I send you a few seeds of the best turnip I ever saw or grew, your purple-top not excepted. They are the Southern Prize, originated by a cross between the White Norfolk Globe and Seven-top. They grow two-thirds in the ground, and are the only turnip that will remain all winter in the ground, *growing* without freezing, here with us. I want you to plant these seeds and report on them. I saved 40 pounds of seed this spring from a little patch, and I am preparing to plant one acre next week in these turnips.

RYE AS A MANURE.

When plowed under green, this has proved a veritable failure with me. I sowed ten acres of it last December, and plowed it in when just preparing to head, and planted it mostly in corn with about one acre of the rye ground in cotton. On land that had no rye plowed in, the corn is much the best, right by the side of the rye land, and each planted at the same time, and fertilized in the hill with raw ground bone. The same is true of the cotton, each being treated alike, and side by side. All is on sandy soil. I am doing considerable farming for a *queen-breeder*, this season. I have 12 acres in corn and 9 acres in cotton, besides numerous "experimental" patches. If you could pass this way I could treat you to some watermelons that are eatable, and not tough and stringy, as the *market* melons usually are, from being fertilized with a *commercial fertilizer*.

Goldsboro, N. C. ABBOTT L. SWINSON.

Friend S., I shouldn't wonder if you had got hold of something very valuable. The seven-top turnip winters over without a bit of trouble. In fact, our ground has got so seeded with them that they are a bad weed. They will start up during this present month of September, and make a most astonishing growth, come into winter stout and strong, and furnish greens in the spring, before any thing else has thought of growing. A good many times I have pulled the great roots, and whittled off the peel to see if there was not something turnip-like about them, but found only a slight turnip flavor, with a small, tough, weedy root. Now, by crossing you may have the great endurance of the seven-top turnip and the bulb and edible quality of the Norfolk Globe. I will explain to our readers, that the seeds were sown about the middle of August. I have now just begun to hoe and thin them out, making a nice stand.—In regard to the rye, I have had the same experience as your own, when I let it get so tall as to show the straw; but where we plowed it under when only knee high, so as to resemble a heavy growth of grass, the effect was quite different.—Thanks for the invitation to come and eat watermelon; but we have some raised right here on the creek-bottom ground which we think are equal to any in the world.

PARIS GREEN, LONDON PURPLE, SLUG-SHOT, ETC.; IS IT DANGEROUS TO USE THEM?

Prof. Cook:—What is Paris green, London purple, and Hammond's slug-shot? I saw in a plant and seed catalogue the other day, where the editor of a bee-paper said slug-shot is so harmless it could be used for tooth-powder, if you choose. I think any thing so harmless it could be used for tooth-powder would be of little use as an insecticide. Please answer, through GLEANINGS. GEO. E. CRESSLER.

Shippensburg, Pa., Aug. 22.

Prof. Cook answers as follows:

Mr. Cressler:—Paris green is arsenite of copper. It is very poisonous—so much so that, when mixed 1 lb. to 200 gallons of water, or 1 lb. to 75 lbs. of plaster, it is very efficient to destroy any insect that may eat it. London purple is arsenite of lime. It is produced by the great Hemingway Manufacturing Co., of London, in the production of aniline dyes. Formerly it was thrown as waste into the ocean. Though it is said to be a little less poisonous than is Paris green, it is practically as fatal to insects. I like it better, as it mixes easier with water, and stays mixed longer. It can also be reduced by mixing with plaster and flour, even to one part in a hundred, and yet be terribly insecticidal. Slug-shot is simply arsenic reduced by plaster, and sold at an enormous profit. Why not use London purple, do our own mixing, and make the profit ourselves? I would never buy any of these indefinite compounds. They cover too much of fraud and adulteration.

Agricultural College, Mich. A. J. COOK.

It is true, that we in our seed catalogue say that slug-shot may be used for tooth-powder, and I have repeatedly tried it when using it to kill cabbage-worms; but the quantity of arsenic contained in slug-shot is so small I do not think there is any danger in applying it to almost any kind of vegetables. It does, however, leave an acrid, unpleasant taste in the mouth, indicating its poisonous property. I have noticed, also, that, where it is applied with the naked hand, if it gets into a bruise or cut, the effect is decidedly unpleasant. When applying it with the powder-bellows, if you happen to stand so the wind will blow it in your face, you will soon find it unpleasant to breathe the dust. Now, I presume it is very likely true that each individual could buy his own arsenic and plaster (or some similar substance), and mix them for himself cheaper than to purchase the slug-shot; that is, if he needed any considerable quantity—50 lbs. or more; but where only a few pounds are needed, I should prefer to purchase it ready made, of just the requisite strength. If I am not mistaken, it is quite a difficult matter to mix the poison and plaster very thoroughly without the use of machinery, and friend Hammond has the machinery. I have had some unpleasant experience in having poisons mixed too strong, and I should prefer to pay a little better price to have it done just right.

REPORT FROM THE "GRAND RAPIDS" LETTUCE.

Last spring I bought two 5-cent papers of Grand Rapids lettuce of you; planted it in hot-bed early in April; transplanted in cold-frame, and then to open ground one foot in row, two feet between rows, and now it nearly covers the ground, touching each other in the row with just enough room between the rows to walk, placing one foot in front of the other, and this, too, on clay ground without extra manuring. In fact, it had no fertilizer of any kind on it this season.

I have 160 fine heads just beginning to send up seed-stalks. There were a few sports in the lot, but only two that would be noticed unless examined very carefully. As I am growing it expressly for seed, I pulled every one that I thought was not true. S. W. PIKE.

St. Charles, Ill., July 5, 1888.

A MIRACLE IN NATURE.

I have lived on the same farm over 27 years. There is a currant bush near the house, standing alone; it has borne common red currants until this year, when it hung full of nice large *white* ones. We have neither cultivated it nor fertilized it in any way, thinking it was old enough to die. Please give a scientific explanation. MRS. L. LAWRENCE.

Wayland, N. Y., Aug. 24, 1888.

You have indeed given us something very wonderful, my good friend. Perhaps Prof. Cook or some of the rest of our scientific men can tell us if such a thing has happened before. My explanation of it, from what I know of currants and their habits, would be that somebody came in the night and dug your currant-bush up, putting a white currant in place of it, and did it so skillfully you never knew the difference. This, I grant you, is very improbable indeed, but it is among the possibilities.

SEED-RAISING.

Although so much has been said about the importance of good, pure, true seed, nobody seems to realize yet the great need of accurate, careful, and honest seed-growers. When we come to buy our seeds we find ourselves obliged to pay the highest prices for the most desirable and latest kinds, and yet few people are found willing to take the necessary care and pains to give the public just what they want. You may remember my talk about Stratagem peas and German wax beans. Just now a letter is before me, asking for from 10 to 15 pounds of Louisville drumhead cabbage-seed. The writer says that, before he purchases, he must have positive knowledge of who grew it. It does not pay to take risks in such a matter as this. A great many of our large seed-growers employ careful, painstaking men to grow their seeds for them—one kind of seed on one farm and another kind on another, to be absolutely sure that there can be no mixture. Below is a letter from a friend who bought quite liberally of the Grand Rapids lettuce:

Mr. A. I. Root:—I bought of you two lots of the Grand Rapids lettuce-seed. I started it in the greenhouse, transplanted to open ground, and pulled out all plants that varied in the least from the general appearance, and I now have 16 rods of very fine seed just ripening. I write this to know if you wish to buy; and if so, what would you pay per pound? I don't expect $100. No other lettuce-seed is grown here, so it is absolutely pure.

Flint, Mich., Aug. 11, 1888. J. L. WILCOX.

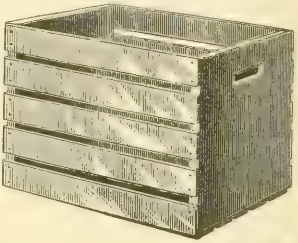
Well, I have offered our friend over $50.00 for the seed he raised on 16 rods of ground. He was smart enough to take advantage of the hint I gave last winter, that there would be a great demand for the seed in the spring of 1889, and he therefore purchased ¼ ounce of the seed of us at 75 cts. It was carefully started in the greenhouse, with the view of getting the seed, and he was the first one among us to be able to announce a good crop. Best of all, he has a character and reputation for fair dealing, that makes it a safe operation to purchase the whole lot, even though he has been a comparative stranger to us heretofore. My friends, a good character and reputation in any kind of business are like good seed to start with in raising any kind of crop.

There, friends, I am sorry to tell you that the boss printer says if I take any more room this time, certain articles will have to be crowded out that we decide must go in, so I am reluctantly obliged to stop. But I tell you I feel real happy to think I have reduced a heap of manuscript on one corner of my table, that has been accumulating for a long while. This heap embraces articles that I have long wanted to find a place for, and I have just got down to a spot where there are a dozen more that I want to see in print very much indeed. Now, if you like this new department, and wish me to continue it, the next time you write us on some other matter add a postscript to the effect that you would like to see the new department kept going.

A SLATTED POTATO-BOX.

SOMETHING A LITTLE CHEAPER, AND PERHAPS A LITTLE BETTER.

IN the manufacture of the one-piece sections we have pieces of basswood left that will not make sections on account of bad color, unsightly knots, checks, etc., in such quantity that we sell, during the busy season, from three to four wagon-loads of this kind of wood for kindling, almost every day. For years we have been puzzling our brains to find some use for these refuse pieces of basswood; but nothing has come up to indicate a use for more than a very small part of them until just now. A few days ago, Mr. Warner, the foreman of our wood-working machinery, submitted a potato-box, made entirely of these refuse strips of basswood, with the exception of the end pieces. We give you a picture of it below.



A NEW POTATO-BOX, MADE OF SLATS.

Perhaps I might explain that the refuse sticks are put on to the buzz-saw and sliced up ⅜ inch thick. This gives the slats. The ends of the box are also made of ¾-inch lumber. With our specially made saws, we cut the stuff almost as smooth as it can be made with a plane; and as the ends are always planed, we have a box that is nice enough to be painted if desirable. By using long barbed wire nails, and putting two in the end of each strip, we get a box strong enough so that the galvanized iron binding can, I think, be safely omitted; and we can make the price, all nailed up, complete, only 20 cts., instead of 25, the price of our former potato-box; 10 boxes, nailed up, will be sold for $1.85; 100, nailed up, for $16.00. Material in the flat, including nails, will be $12.00 per 100. We shall crate them in packages of 12 boxes each at $1.50 cts. a package, and *two* of the 12 will be nailed up.

The more I use the potato-boxes, the more I am convinced there should be a good deal of ventilation through them. Keeping our seed potatoes over winter last year, we found a few rotten ones, but they were invariably in the center of the boxes. The boxes were raised from the ground by blocks, and separated from each other by blocks also, so as to allow a full circulation of air. Now, these slatted boxes will give a better circulation than the old kind, even if they are simply piled one over the other, without any blocks between them at all.

OUR HOMES.

And the people chode with Moses, and spake, saying, Would God that we had died when our brethren died before the Lord!—NUM. 20: 3.

AS one reads this history of the children of Israel, and their journeyings through the wilderness, he begins to feel sympathy with the narrator or writer. It is almost impossible to write on any subject, even the details of history, without making it evident to the careful and thoughtful reader how the writer feels in regard to the story he is telling. In this present book of Numbers, although it is for the most part a cool and unimpassioned statement of facts, yet for all that, one's heart unconsciously warms toward the writer; and one reason why I have selected this verse in the 20th chapter of Numbers is a good deal because of the quaintness it displays in recounting how the children of Israel became *once more* stubborn and rebellious. The word "chode" is not in use now; but for all that, every reader at once understands what it means; and it is wonderfully suggestive, especially after having followed the history up to that time. Poor old Moses! It is not the first time by any means that the people "chode" with him when things didn't go just right. Away back, God chose Jacob from among the people as being peculiarly fitted for the father of a great kingdom. Sometimes we are tempted to think that good men were remarkably scarce in those days, if it is really true that there were none better to be found than Jacob. However, Jacob came of a good family. No one can fail to accord reverence and respect to the patriarch Abraham—yes, and to his son Isaac; but notwithstanding Jacob's bad streaks, God seems to have cherished all along a peculiar regard for him, especially when, toward the close of his life, the bad streaks seem to have been gradually fading away. Well, from what we know of Jacob it is not a little surprising that there was stubbornness, jealousy, and wickedness among his boys. One would hardly suspect them however of such a crime as putting their brother to death; and we feel a little relieved when we note that, among the brethren, there were at least a few who seemed to have a better spirit. These mothers of Israel were also human, like the mothers of the present day, and no doubt this had something to do with the bad blood in the hearts of those eleven sons of Jacob; therefore when we consider the ancestry of these children of the wilderness it is not surprising that they were, from one point of view, a rather hard lot to get along with. When under the bondage of the Egyptians they groaned under their burdens. We are not told that they turned to God in their distress, and appealed to him for help, reminding him of his promises to their ancestors, but no doubt they did, many of them. At any rate he heard their groanings, and in a wonderfully miraculous way sent deliverance. It transpires, however, that, like the people of the present day, many of them were given to grumbling, no matter what happened; and as Moses was their leader it got to be the fashion to pitch into him, and complain to him if any thing went amiss. Even before their deliverance, as they marched up to the borders of the Red Sea they commenced their complaints. They seem, also, to have a wonderful talent and ingenuity for saying bitter and spiteful things. For instance, as they came up to the borders of the sea, and, to human eyes, were "in a corner," they commenced with a grumbling lingo as follows: "Because there were no graves in Egypt hast thou taken us away to die in the wilderness? Wherefore hast thou dealt thus with us to carry us forth out of Egypt?" And mind you, dear reader, this was immediately after they had been delivered by a miracle—yes, by an astounding *series* of miracles—from the bondage and slavery they had been groaning under. They continued: "It had been better for us to serve the Egyptians than that we should die in the wilderness."

Now, my disposition just at this present moment would have been to reply, "Very well, my friends. If you prefer the bondage of the Egyptians, go back and serve them, and die there." But not so with Moses. And now it begins to transpire why Moses was called the "meek man." He pays no attention whatever to their slurs and insults, but replies like a hero, "Fear ye not. Stand still, and see the salvation of the Lord which he will show you this day." And then followed that wonderful and crowning miracle of their deliverance from the enemies who foolishly thought they had cornered them at last. My friends, all the powers of darkness can never succeed in cornering a *man* or a *people whom God loves*.

Shortly afterward, when they came to the bitter waters of Marah they murmured again, saying, "What shall we drink?" In fact, food and drink seems to have been a standing trouble every little while. They had forgotten their deliverance—had forgotten how the waters of the sea miraculously stood up like a wall; they had forgotten the wonderful and unlimited resources and promises of the Lord God of Israel.

The next thing was a lack of bread. I do not know how hungry the people got; but I do know they became ugly and wicked enough to say, "Would God we had died by the hand of the Lord in the land of Egypt. . . . For ye have brought us forth into the wilderness to kill this whole assembly with hunger." My friend, when you get to the point that you do not scruple to say out loud that you wish you were dead, or that you wish you had never been born, you are pretty thoroughly in the hands of the evil one. At such a time you are ready to speak untruth and blasphemy without much scruple. Just think of the insult in telling Moses that *he* had brought them into the wilderness to kill them with hunger! Yes, and they uttered such speeches as these when they were on the road to the promised land, "flowing with milk and honey." Whenever I think of that land I always feel a greater affection for my Jersey cow; and I also feel glad that the chosen business of my life has been toward the production of honey for the hungry multitudes. Ours is surely a praiseworthy calling, brothers and sisters; and we have the words of holy writ to indorse it. Well, although God rained bread from heaven, this did not stop their grumbling. Please remember, friends, that we have reason to think this bread of heaven was something perhaps remotely akin to honey-dew of the present day. We are pretty sure, however, that it was more palatable than some samples of the honey-dew honey we get in some localities. Well, I need not follow the miracles and the repeated murmurings. Shortly after the manna, they complained because they did not have any meat, and God sent them quails, the very nicest kind of meat, in quantities so unlimited that the two or three millions of people all had a great abundance. Soon after, there was a lack of water again; but instead of trusting in the loving hand that had, at every exigency, supplied them abundantly, we learn, "The people did chide with Moses, and said, Give us water, that we may drink." And then they took to their old refrain, "Wherefore is this that thou hast brought us out of Egypt, to kill us and our cattle with thirst?" Moses finally, in great distress, went to the Lord, telling him the people were almost ready to stone him; and then God directed that he should strike the rock. One is reminded of a little boy who wanted a piece of cake because his brother had one. The brother, as he munched away, informed him, "You will have to cry, and then mother will give you a piece. That is the way I got mine." It was no human mother, however, that these children had to deal with. God wisely forbore surfeiting them with every thing they clamored for, just exactly as he wisely withholds things from us when he sees it is very much better for us to work as well as pray for the things we need. What a wonderful history is this that lies before us—the dealings of an infinite God with his people whom he has honored, by creating them with the power to do right or wrong! They knew what was right as well as we do; but they were stubborn and unthankful as we are. They did not scruple to give way to evil impulses just as we, dear friends, too often unscrupulously give rein to the suggestions of evil thoughts. In spite of the miracles, and in spite of the timely relief given them over and over again, they did not or would not learn the lesson of faith in God. One falls to wondering what would have been their lot had they been left to suffer Egyptian bondage. Were they any happier on the road to the promised land, or even in the promised land, than in bondage in Egypt? Was it possible for God to do any thing for them to make their lot better? I am really afraid it was not possible for God to do any thing for them so long as they remained stubborn and willful; and I have sometimes thought it impossible for God to do any thing for us so long as we persist in remaining on the low level of thinking only of selfish pleasures and selfish gratifications. The old prophet Ezekiel says, "Turn ye, turn ye, for why will ye die?" And one of our favorite hymns thus expresses it in verse:

Oh, turn ye! oh, turn ye! for why will ye die,
When God in great mercy is coming so nigh?
Now Jesus invites you; the Spirit says, "Come,"
And angels are waiting to welcome you home.

The contrite in heart he will freely receive;
Oh! why will you not the glad message believe?
If sin be your burden, why will you not come?
'Tis you he makes welcome; he bids you come home.

Our old friend Moses bore all these murmurings with a wonderful spirit of meekness. When even God himself seems to have decided that forbearance had ceased to be a virtue, and decided on their destruction, Moses throws himself in the dust and pleads for his stubborn and weak brethren. In fact, Moses as the intercessor gives us a glimpse of Christ Jesus himself. Well, Moses bore this fault-finding and complaining, through a whole generation. He saw the fathers and mothers, one after another, die and pass away, and their children grow up in their stead. Perhaps he vainly hoped, as have many of us at the present day, that a *new* generation would inaugurate a new order of things; but, dear friends, humanity is humanity still; and our children, as they grow up, exhibit very much of the spirit and very much of the weakness of ourselves. Moses, at the time of our opening text, was dealing with a new generation; but they had followed their parents only too well; and in their impatience at the lack of water they had the audacity to tell him, "Would to God we had died when our brethren died before the Lord."

I shall have to go back a little to explain this speech. To add to Moses' burdens, every little while some jealous or dissatisfied one in the ranks had accused him of taking too much responsibility. In chapter 16, we are told that several of these, with one Korah as their leader, with 250 princes of the assembly, even famous men and men of renown, visited him with a speech something as follows: "You take too much on you, seeing all the congregation are holy, every one of them. . . . Wherefore, then, lift ye up yourselves above the congregation of the Lord?" Now, this whole thing was the most absurd folly. God himself had chosen Moses as the leader, and had commanded him day by day to speak his wishes to the children of Israel. Moses, with his usual meekness, remonstrated and begged them to consider. But they were stubborn and rebellious. They even taunted him with words like these: "Thou hast not brought us into a land that floweth with milk and honey, nor given us inheritance of fields and vineyards. Wilt thou put out the eyes of these men? *We will not go up.*"

Their expression about putting out the eyes, probably alluded to scenes of cruelty among the heathen kings round about them; but poor Moses never did an act of cruelty in his life. These men finally became so mutinous and wicked that there was nothing to be done but destroy them; and Moses, after repeated warnings, called upon all who would heed the wrath of God to withdraw from that evil conclave, so that those who met death met it fairly and understandingly. With awful stubbornness they stood and defied the Lord God of the universe. We are told that, as Moses made an end of speaking, the ground clave asunder that was under them, and the earth opened her mouth and swallowed them up, and their houses, and all that appertained to Korah, and their goods. And the earth closed upon them. After that a fire came from the Lord and consumed the 250.

Now, some of you may say, dear friends, that this was awful and terrible. Some of you have censured God for creating human beings to be destroyed in this way. My friends, God did not and does not create the *evil* that is in us. He did and does, however, give us knowledge and liberty to *choose* between good and evil. Even to-day, when men show this wicked and depraved spirit to such an extent that they imperil human life and property, we not only shut them up but take life. Most of you have heard, probably, of the gang of outlaws who murdered detective Huligan in our neighboring town of Ravenna. They deliberately murdered our officers of the law—those who were appointed to protect human life and property, because they did their utmost to be faithful, and because they would not give up their prisoner. When Blinky Morgan had finally been put to death on the gallows, I breathed a prayer of thanksgiving to God, and I do think it is the duty of every Christian to pray that our officers of the law may be successful in capturing murderers and criminals; and for myself I feel it is right for me to thank God when law has triumphed and crime has been punished.

To return to our text. These rebellious spirits had the awful hardihood to say, in the language of our text, "Would to God we had died too" with the followers of Korah. For the preservation of law and order, it is absolutely necessary that punishment be inflicted. If murderers and rebels were allowed to go at large, neither property nor human life would be safe. The Bible tells us that the law is a terror to evil-doers; but the law would have no terrors were it not enforced; and any man with a spark of good in his heart is taught a wholesome lesson by these scenes of the punishment of crime. These people, however, were so depraved and hardened, that, instead of being awed by the awful spectacle of being swallowed up by the earth, and seeing fire come from heaven as a vindication of God's wrath and displeasure, they deliberately told Moses they wished they had cast in their lot with the guilty ones, and had been consumed also. When Satan gets full possession of the human heart, there is no scruple nor limit to its foolhardiness.

And now for a practical application of this lesson to our own lives. Are we rebelling against God's plans and purposes? Has God a plan and purpose for each and all of us? Most surely he has, else we should never have been created and placed here as we are. He must be dull indeed who can not see the plans of the Almighty in these things that are unfolding before us day by day. Some of us have lost faith because, from our feeble and narrow standpoint of view, we can not see the reason of these things. Why should there be drouths, then floods and cyclones and hail and earthquakes? A good many of us are dissatisfied with our lot in life. How many of our readers who till the soil for a living have said, "Farming does not pay"? We grumble at the high prices of things we have to buy, and we get long-faced, and mourn, because of the low prices of the things we have to sell. Perhaps I have hitched these two extremes a little too close together, to make a point on them. Did you never think, my dear friends, that, when wheat is only 75 cts. a bushel, it enables many brothers of yours to thank God because it does not cost so much to live as it used to? And, again, when you grumble and groan because you had to pay a dollar a bushel for potatoes, did you never think how some poor soul who raises potatoes for a living would rejoice that he was thus enabled to lift a mortgage, or pay back part of the money he had borrowed to enable him to underdrain his land? Surely there is a providence in it all. May be we are too weak and small and feeble to catch even a glimpse of the great machinery of the universe; but even the feeblest one among us can trust God, and praise him, whether the prices go up or down; whether we have an untimely frost, or beautiful fall weather without frosts. When you get so near to God that you can say, "Even though he slay me, yet will I trust him," then are you in harmony with the universe. Yes, even if we have not had a crop of honey for three seasons in succession, we can say, "Blessed be his name," and be happy still.

During the last day of our county fair, a man stopped his buggy to inform me that a handsome brood of young Brahmas had taken up their roosting-place almost in the middle of the highway. Their mother had weaned them a few days before; and when it came night they huddled together on one end of a small bridge; but they were so near the road that it is a wonder the buggy-wheels had not cut through their little huddle already. Huber and I tried to drive them over to the barn, near the rest of the poultry. Poor, silly young chickens! They imagined that Huber and I were trespassing on their rights, and again and again they put back to their chosen roosting-place. Finally we were obliged to catch them one at a time, and put them in a place of safety. It was so far away that we did not think they would find their way back; but when night came again, there they were in the old place of danger, and they stubbornly resisted any efforts on the part of their best friend and owner to put them in a place of safety. Poor foolish chickens! But, dear friends, are they any worse than poor silly humanity, who stubbornly kick against a kind Providence that would take them out of danger and lead them through green pastures and beside still waters, yea, even to the promised land—a land that floweth with milk and honey? My friend, when you feel like grumbling and complaining, or even looking cross, think of these words I have been saying to you, and read over this history in your Bible that I have been telling you about to-day. If you have been longing to know just why God gave you existence, and what plans he has especially for yourself individually, read the Bible; ponder on it, and ask your Creator to give you understanding, and the answer will come. I have never known it to fail. And while you do this, do not, I beseeech you, hold aloof from your fellow-men. God's plans for the children of Israel were for them collectively, and his plans for us are for us collectively. After you have begun to study your Bible, hunt up the nearest prayer-meeting; get in with a body of Christian people. If they are not very good Christians, go in with them as Christ the Savior would go, to help them. If you have better judgment or greater wisdom than they have, God calls on you to give them your assistance. Go humbly, go prayerfully.

Whosoever therefore shall confess me before men, him will I confess also before my father which is in heaven.—Matt. 10:32.

Do not find fault; do not grumble; do not complain; do not tell what you will or will not do; do not find fault with the weather, the prices, the crops, the things that belong to God, and which you can not help. Tell yourself over and over again, that all things shall work together for good to those who love the Lord; then set about loving him, loving his people, loving his creatures, loving this world he has given us just as it is, and your life will grow brighter and happier. Better still, community all around you will grow better and happier and brighter; and by and by shall be ushered in the new heavens and the new earth, according to the plan of an infinite and all-wise and good Father—the plan that was founded before the world.

GLEANINGS IN BEE CULTURE.

Published Semi-Monthly.

A. I. ROOT,
EDITOR AND PUBLISHER,
MEDINA, OHIO.

TERMS: $1.00 PER YEAR, POSTPAID.

For Clubbing Rates, See First Page of Reading Matter.

MEDINA, SEPT. 15, 1888.

It is hard for thee to kick against the pricks.—Acts 26:14.

MARKET FOR SILK COCOONS.

The following comes to us from the U. S. Department of Agriculture:

> The Commissioner of Agriculture at Washington, D. C., is now purchasing cocoons of the crop of 1888. Persons having any for sale should communicate with him at once and obtain a circular relating to the terms of purchase. If you have not yet applied for Silkworm Eggs for 1889, do so at once so that your application may not arrive too late.

Write directly to the Commissioner of Agriculture, Washington, D. C. Do not write to us, for we know nothing about it further than the above. I am inclined to think, however, that the price paid will not prove to be very remunerative unless the person who produces the cocoons is so situated as to have but little else to do.

THE BEE-STING-TROWEL THEORY IN REGARD TO THE CAPPINGS OF HONEY.

In the last number of the *American Bee Journal*, in the Question-Box department the question is asked whether bees do pierce the capping of the cells, for the purpose of injecting formic acid into honey. The answers are uniformly emphatic to the effect that bees do not make any such use of their sting. It is admitted by some of the correspondents that formic acid is in the honey, but that its presence is due, not to the sting, but to the process of digestion.

PRESENT INDICATIONS.

Judging from the number of orders for extractors, labels, etc., which have poured in recently, it would seem that some honey is coming in somewhere. Indeed, the aspect seems to be changing a little bit for the better. Instead of a long array of "Reports Discouraging" in this number, with very few of the other kind, you will see about as long an array of "Reports Encouraging." Some of the latter say it is "the best season ever known;" "average crop;" "good, considering." We hope to get out a batch of statistics in a few weeks. We shall then know a little better about the present status of things.

DISCOURAGING FOR THE BRITISH ISLES.

In the *British Bee Journal* for Aug. 30, Bro. Cowan tells us that the season of 1888 may be reckoned as the most disastrous that bee-keepers ever experienced in the British Isles. He says flowers have been plentiful, but when in bloom the weather prevented the bees from leaving their hives, and in consequence many of the stocks are in a starving condition. He brings up the question as to wheth- it will pay to feed. For those who have frame hives he answers emphatically, yes. He is not sure that some of the cottagers who have managed to make ends just meet, aside from the bees, can do so; but he urges feeding if possible. He is quite sure it will pay in the long run. The failure of the honey crop seems to be general.

ALSIKE—SOWING IT IN THE FALL.

We shall be very glad to sell you the seed, friends, especially as the price is quite low (only $7.00 a bushel); but so far as my experiments go it will certainly be killed out by the winter if you sow it after the first of September. I have tried it repeatedly, and I never got any sort of a stand. Last fall I sowed some on one end of a piece of rye, giving it the very best market-garden soil. The plants came up and made a fine show, but not a plant was visible in the spring. I am not certain whether the same is true of other kinds of clover or not. I am sure, however, that fall sowing has been quite universally abandoned for Terry's plan of sowing in the spring when the ground is honeycombed by frost. See Terry's potato-book for further particulars.

FALSE STATEMENTS, AND THE THOUSAND-DOLLAR OFFER.

At this time of year, especially at the county fairs, the honey-exhibitor will probably hear the old cry of adulteration and manufactured stuff; and the groceryman who retails your honey will probably have to listen to the same old story, in spite of any thing either you or he can say. We remind our readers again, that the editor of this journal has a standing offer of $1000 in cash, to be paid to the person who will furnish satisfactory proof that comb honey is manufactured by machinery. To get the matter squarely before such falsifiers, please hand them one of our cards, offering the reward as above, and say to them, "Now furnish your proof." Bear in mind, that these cards are furnished free upon application. If you know of any person who is in the habit of retailing such slander against honest bee-keepers, please hand or send to him one of these cards. We are glad to furnish them in any quantity for judicious distribution.

AN ENEMY TO THE CLOVER, AND PERHAPS TO OUR HONEY CROPS.

WHILE at friend Terry's we went into a clover-field, and he called attention to an insect-enemy which seems to threaten trouble, not only to the farmer, but to the bee-keeper as well. On page 686, Prof. Cook speaks of a clover-mite, and of a clover-seed midge. I can not remember exactly what friend Terry called it, but he pulled up a clover-stalk, split it with his knife, and showed us a live *bug*, I should call it. It was the same with another stalk, and he informed me that I would find one in every stalk of clover in the field. It has already hindered the blooming, and friend T. informed us that scientific men were feeling considerably troubled as to what might be the result if kept on.

FIGURES WON'T LIE.

Yes, but they oftentimes make a deal of trouble, owing to this very fact. A great many times customers who wanted our regular Simplicity sections have by mistake made wrong figures; and it has happened over and over again, that somebody ordered sections 4½ by 4½ when they meant to say 4¼ by 4¼. This mistake in figures not only made us a heap of trouble in changing our machinery to something irregular, but when the purchaser received them right in the rush of the season, perhaps there was more trouble still, for his sections would not go into his wide frames and cases at all. Now, let me give you a suggestion. When ordering sections or any thing else, if you want regular goods, just say "Simplicity sections"—nothing further, then you will get regular stock. If you attempt to give dimensions of regular goods, it is the easiest thing in the world to make the wrong figure. Therefore, just because of the fact that figures will not lie, do not have any thing to do with them, unless you want something irregular, where the dimensions *must be* given in figures. I have myself had so much sad experience in this way that I avoid figures whenever I can. For instance: If I want some stuff cut up just so long, I cut a stick the length I want it; then I am pretty safe; but if I measure it off on a square, and say so many feet and inches and fractions, there are two chances for a blunder. Possibly I might make one in measuring, and the man who measured again might make a mistake. Cut a stick just right, and you have nothing to do with feet and inches at all.

SEPTEMBER WORK.

INTRODUCING QUEENS.

THE months of August and September are, to many bee-keepers, a time when but little work is to be done with the bees. This is particularly the case in those localities where there is no honey-flow in the fall. After the early yield is over, the bees are apt to be neglected until the approach of winter reminds the owner that his bees need protection. I am inclined to think that this is very unfortunate, aside from the honey that might be secured, for it is during these months that the foundation is laid for wintering, successful or otherwise. The bee-keeper need not be altogether idle, even if there is no honey to care for. These months have always been my favorite time for rearing and introducing queens, and they have many advantages for this purpose over the earlier months.

QUEENS REARED IN THE FALL, COMPARED WITH THOSE REARED AT OTHER SEASONS.

Queens can be reared more cheaply at this time than at any other; and if you choose to buy, the price is less. They are introduced at a time when the bee-keeper is, as a rule, not very busy, and when the bees are not breeding very strongly, so that queenlessness for a short time is but little loss.

The claim is often made, that queens thus reared "out of season" are not as good as those raised earlier. This sounds well enough; and if the slipshod methods, sometimes advised, are followed, it is perhaps true; but experience has convinced me that, if properly reared, they are exactly as good as the earlier queens, and I have sometimes thought them better. The reason why I thought them better was that they would have more brood in the hives late in the fall than queens reared earlier, thus leaving the colony in better condition for wintering. Some have argued that a queen, introduced too late to lay much in the fall, would prove extra prolific in the spring, and it has sometimes seemed as if this were so. I have had queens hatched the last of September, that, owing to cold weather, did not begin to lay until Nov. 9—40 days after—and then laid only small patches of eggs, yet proved prolific and long-lived mothers of vigorous colonies.

SUPERIORITY OF ITALIANS OVER BLACKS.

If there is any thing that the past two seasons should have taught bee-keepers it is, that the superiority of the Italian bee, so long argued, is a real one. I started with black bees, Italianized my apiary, then experimented again with blacks as well as with other races; and the result is, that I am more firmly convinced than ever that the Italians are the best. Some prominent bee-keepers, I know, have decided in favor of the black bee; but they have peculiar reasons for their preference, which do not apply to all. These reasons I will try to give in another article. In this article, though, I will give just one argument for blacks vs. Italians that is cold fact gained by experience.

Last year I had a few colonies of blacks, kept for experimental purposes. No surplus honey was gathered, and I expected to be obliged to feed heavily, as the neighboring bee-keepers having principally blacks did. I was relieved, though, when I came to weigh my bees in the fall, to find that but few required feeding, and most of them only a little. All the black colonies, though, had to be fed from ten to fifteen pounds apiece. I then calculated that, counting extra feed and time, it had cost me at least a dollar apiece more, on an average, to prepare those black colonies for winter than the Italians. What wonder that I decided then and there that I would never again own black bees any longer than I had to? JAMES A. GREEN.

Dayton, Ill., Sept. 8, 1888.

DISCOUNTS FOR EARLY ORDERS.

It has been our custom in the past few years to offer discounts during the fall and winter on many articles in our catalogue, so as to divert as much as possible of the spring trade into those early months, so that we may not be so crowded during the spring months that we can not attend to orders promptly. We intend to make the discount sufficient to make it an object to buy early, so that, even if you have to borrow the money, it will pay you to do so, providing you know pretty nearly what your wants in the spring will be. It is best, too, to get your stuff early, so as to have it nailed together and painted during the long winter evenings and dull times when you have nothing else to do; then it will be all ready when you need it in the spring. Of course, to offer these inducements cuts down our margin on the goods to a small basis; but we prefer to do so rather than have the trade come all at once, and then perhaps be obliged to disappoint many of our customers by not shipping promptly. Then, too, we have the machinery all ready, and it might as well be running as not. Below we enumerate the articles on which we will allow a discount, in two lists: During September and October discounts will be

10 PER CENT.

Entrance Guards, Comb Fdn., Fdn. Mills, Parker's and Gray's Fdn. Fasteners, Blood Rollers, Wire-Imbedders, Wired Frames, put up and in flat, with and without Fdn.; tinned Wire, tin Bars, Carlin Fdn. Cutters, plain Division-boards, Honey-extractors, Broken-comb Baskets, Brood-frames, Metal Cornered, all Wood and Reversible; also Metal Corners, Slatted Wood-zinc and all-zinc Honey-boards; Sections and Wide Frames; Lawn-mowers and Carpet-sweepers.

5 PER CENT.

Alighting - boards, Chaff Cushions; Circular Saws and Saw-mandrels; Star Saw-set; Comb-holder; Comb-buckets; Chaff Division-boards; Enamel Cloth and Sheets; material for Extractors; Bee-feeders; Files; Barnes Sawing - machines; Wire Nails; Bee-hives, all kinds, put up and in flat; Combined Crates, T Supers, and tin Rabbets and T tins; Honey-knives; tin Separators; Clark Smokers; Wax-extractors; Daisy Wheelbarrows.

No discount on articles not mentioned in either of the above lists. During November and December, the discounts will be 8 and 4 per cent respectively. In January, 6 and 3 per cent; in February, 4 and 2 per cent. After Feb., 1889, no discount.

A. I. ROOT, Medina, O.

1888. 1888.

Pure Italian Bees and Queens

for sale in Full Colonies or Nuclei. Five L. frame nuclei a specialty. My queens and bees possess all the good qualities of the most desirable honey-bee. Send for prices.

WM. LITTLE,
6tfdb **Marissa, Ill.**

☞In responding to this advertisement mention GLEANINGS.

DRIED PEACHES, good quality, at 6 cts. per lb. Good dried apples, 4½ cts. per lb., all free from worms. Boxed and on cars at those prices.
18tfdb T. A. GUNN, Tullahoma, Tenn.

DADANT'S FOUNDATION FACTORY, WHOLESALE and RETAIL. See advertisement in another column. 3tfbd

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G. B. LEWIS & CO.

WE make the best Bee-Hives, the best Sections, the best Shipping-Crates, the best Frames, &c.

☞We sell them at the Lowest Prices.

Write for free Illustrated Catalogue.

G. B. LEWIS & CO.,
1tfdb WATERTOWN, WIS.

☞In responding to this advertisement mention GLEANINGS.

Costs less than 2 cents per week.

THE CANADIAN BEE JOURNAL.

THE FIRST DOLLAR WEEKLY IN THE WORLD.

THE D. A. JONES CO., PUBLISHERS, BEETON, ONTARIO, CAN.

D. A. Jones is its editor, and this fact is a guarantee of its worth. It is thoroughly practical and contains weekly excellent articles from leading bee-keepers in the United States and Canada. Fifty-two numbers make a volume of 1040 pages. American currency and stamps at par. Samples free.

CARNIOLAN QUEENS.

From the best honey strain, at prices to suit the times. Send for descriptive price list, giving honey-record, management, etc.

H. F. SHANNON.
16-17-18d *Box 56. Clarksburg. Ind.*

☞In responding to this advertisement mention GLEANINGS.

---

50 Untested Italian Queens, 50c. each.
M. ISBELL, NORWICH, N. Y. 17-18d

NEARLY THIRTY TONS
—OF—
DADANT'S FOUNDATION
SOLD IN 1887.

It is kept for sale by Messrs. T. G. Newman & Son, Chicago, Ill.; C. F. Muth, Cincinnati, O.; Jas. Heddon, Dowagiac, Mich.; F. L. Dougherty, Indianapolis, Ind.; B. J. Miller & Co., Nappanee, Ind.; E. S. Armstrong, Jerseyville, Ill.; E. Kretchmer, Coburg, Iowa; P. L. Viallon, Bayou Goula, La., M. J. Dickason, Hiawatha, Kansas; J. W. Porter, Charlottesville, Albemarle Co., Va.; E. R. Newcomb, Pleasant Valley, Dutchess Co., N. Y.; D. A. Fuller, Cherry Valley, Ill.; J. B. Mason & Sons, Mechanic Falls, Maine; G. L. Tinker, New Philadelphia, O., Jos. Nysewander, Des Moines, Ia.; C. H. Green, Waukesha, Wis.; G. B. Lewis & Co., Watertown, Wis.; J. Mattoon, and W. J. Stratton, Atwater, O., Oliver Foster, Mt. Vernon, Iowa; C. Hertel, Freeburg, Ill.; Geo. E. Hilton, Fremont, Mich.; J. M. Clark & Co., 1409 15th St., Denver, Colo.; Goodell & Woodworth Mfg. Co., Rock Falls, Ill.; J. A. Roberts, Edgar, Neb., E. L. Goold & Co., Brantford, Ontario, Canada; J. N. Heater, Columbus, Neb., and numerous other dealers.

Write for *free* samples, and price list of bee supplies. We *guarantee every inch* of our foundation *equal to sample in every respect.* Every one who buys it is pleased with it.

CHAS. DADANT & SON,
3btfd **Hamilton, Hancock Co., Illinois.**

☞In responding to this advertisement mention GLEANINGS.

FOLDING BOXES.

Enclose your COMB HONEY in our Cartons. Prices Reduced for 1888. Sample 5c. 20 page Catalogue of Glass Jars, Honey Labels, etc., FREE. Send for it. Address

A. O. CRAWFORD, S. Weymouth, Mass.

☞In responding to this advertisement mention GLEANINGS.

Cash for Beeswax!

Will pay 20c per lb. cash, or 23c in trade for any quantity of good, fair, average beeswax, delivered at our R. R. station. The same will be sold to those who wish to purchase, at 25c per lb., or 28c for *best selected wax.*

Unless you put your name *on the box,* and notify us by mail of amount sent, I can not hold myself responsible for mistakes. It will not pay as a general thing to send wax by *express.*

A. I. ROOT, Medina, Ohio.

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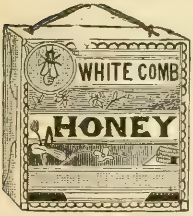
CONVENTION NOTICES.

The Pan-Handle Bee-Keepers' Association will hold its next meeting in the K. of P. Hall, on Main St., between 11th and 12th sts., Wheeling, W. Va., Nov. 21 and 22, 1888. All bee-keepers are cordially invited. W. L. KINSEY.
Blaine, O.

PASTEBOARD BOXES

FOR ONE-POUND SECTIONS OF

COMB HONEY.



THIS box has a bit of "red tape" attached to it to carry it by. It makes a safe package for a single section of honey for the consumer to carry, or it can be packed in a trunk, if he wants. It can be opened in an instant. The price of the box is 2 cts. each, set up; in the flat, 15 cts. for 10; package of 25, 25 cts.; 75 cts. per 100; or $6.00 per 1000; 10,000, $55 00; without the tape handle, deduct 10 cts. per 100. If wanted by mail, add $1.00 per hundred for postage. Colored lithograph labels for putting on the sides, two kinds, one for each side, $3.00 per 1000. A package of 25, labeled on both sides, as above, 45 cts. By mail, 30 cts. more. They can be sold, labeled on one side or both sides, of course. We have only one size in stock, for Simplicity sections. Sample by mail, with a label on each side, 5 cts. If you want them shipped in the flat, labels already pasted on, the price will be ten cents per hundred for putting them on. We can print your name and address in a nice design right on one side of the box for 50 cts. per 100; $1.00 for 500, or $1.75 per 1000.

Your name and address, and the kind of honey, may be printed on these labels, the same as other labels. The charge for so doing will be 30 cts. per 100; 250, 50 cts.; 500, 75 cts.; 1000, $1.00.

A. I. ROOT, Medina, Ohio.

DADANT'S FOUNDATION FACTORY, WHOLESALE AND RETAIL. See advertisement in another column. 3btfd

BEES, Queens, Hives, Given Comb Foundation, Apiarian Supplies, German Carp, Small-fruit Plants. Send for catalogue free. E. T. Flanagan, Belleville, Ills. 1-24db.

BEES FOR SALE.

I have 80 fine swarms of bees in Simp. and Langstroth hives, which I want to sell. Price $200. Twenty swarms are Italians; honey enough in hives to pay for the whole. F. TOMPKINS,
Lawsville Center, Susq. Co., Pa.

Wants or Exchange Department.

Notices will be inserted under this head at one-half our usual rates. All ad's intended for this department must not exceed 5 lines, and you must SAY you want your ad. in this department, or we will not be responsible for any error. You can have the notice as many lines as you please; but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale can not be inserted under this head. For such our regular rates of 20 cts. a line will be charged, and they will be put with the regular advertisements.

WANTED.—To exchange full colonies of bees, $5.00, for poultry, seeds, tools, honey-boards, fdn., sections, F. P. saw, or any thing I can use on farm or apiary. W. H. LAWS, Lavaca, Ark.
16tfdb Ex. Office, Ft. Smith.

WANTED.—To exchange for extracted honey, a 10 h. p. horizontal engine, worth $200. I will give somebody a rare bargain. Speak quick.
15tfdb C. H. SMITH, Pittsfield, Mass.

WANTED.—To exchange dried fruit, peaches and apples, for good clover and basswood honey. Will give 1 lb. of peaches for 1 lb. of honey.
18tfdb T. A. GUNN, Tullahoma, Tenn.

DO you wish to exchange extracted honey for supplies? If so, write at once to
15tfdb CHAS. H. SMITH, Pittsfield, Mass.

WANTED.—To exchange choice Italian queens for comb or extracted honey. Correspondence solicited. JAMES F. WOOD,
13tfdb North Prescott, Mass.

WANTED.—To exchange portable baker's oven (could be used for drying fruit) for bees or offers. B. M. YORK, Grove City, Florida. 19d

WANTED.—To know how many bees you want for your Springfield Roadster. L. HEINE,
19d Bellmore, Queens Co., N. Y.

WANTED.—Good gold or silver watch, or supplies, for bees. F. ERKEL, LeSueur, Minn. 19d

Black and Hybrid Queens For Sale.

For the benefit of friends who have black or hybrid queens which they want to dispose of, we will insert notices free of charge, as below. We do this because there is hardly value enough to these queens to pay for buying them up and keeping them in stock; and yet it is oftentimes quite an accommodation to those who can not afford higher-priced ones.

Carniolan and Italian hybrids, 40 cents. Other hybrids and brown queens, 20 cts. each; guaranteed young, prolific, and industrious, from natural swarms. F. C. MORROW,
Wallaceburg, Hempstead Co., Ark.

FOR SALE.—8 or 10 black and hybrid queens in October, at 30 cts. each. Address
WM. H. COMBS, Marceline, Linn Co., Mo.

About 30 surplus tested Italian queens, at 50 cts.
C. WEEKS, Clifton, Tenn.

I have some black queens, which I will sell at 25 cts. each, or 5 for $1.00, as long as they last. First come first served, and served well too.
C. H. EHLERS, Pleasant Valley, Scott County, Iowa.

Italian Queens! Tested, $1.25; Untested, 50c.
MISS A. M. TAYLOR,
19d Mulberry Grove, Bond Co., Ill. Box 77.

MELISSA, OR BEE-BALM.

Can furnish strictly pure clean seed at 50 cts. per ounce. Send for 10 cts. worth and try it. Now is the time to plant. Address 18-19d
G. W. BALDWIN, Forest City, Holt Co., Mo.

DADANT'S FOUNDATION FACTORY, Wholesale and retail. See advertisement in another column. 3btfd

HONEY COLUMN.

CITY MARKETS.

NEW YORK.—*Honey.*—New comb honey is arriving quite freely, and we quote as follows:

Fancy white, 1-lbs.,	17@18; off grades,	15@16.
" " 2 lbs.,	13@14; " "	12.
Buckwheat, 1-lbs.,	11@12; 2 lbs.	10@11.

Extracted white, 7½@8½. Buckwheat, 5½@6½. " California, white sage, 7½@7¾. Amber, 7¼@7½. *Beeswax*, 23@23½. The demand is very good, and we would advise bee-keepers to ship as early as possible and obtain prompt returns.

Sept. 26. HILDRETH BROS. & SEGELKEN,
28 & 30 West Broadway, New York.

KANSAS CITY.—*Honey.*—We quote white 1-lb. comb at 17@18; 2-lb. comb, 14@16; 1-℔. California, 16@17; 2-℔., 14@16. Extracted, 7@7½; amber, 6½@7. Amber and dark, in bbls., 3@5. *Beeswax* per lb., 18@20. CLEMONS, CLOON & CO.,
Sept. 22. Kansas City, Mo.

COLUMBUS.—*Honey.*—Demand for honey is good. Fancy white, 1-℔., 16@18; same, 2-℔s., 15@18. Medium white, 1-℔., 12½@14; same, 2-℔s., 10@14. Extracted, No. 1, 10; No. 2, 8. We are receiving large consignments of fine stock, and selling on arrival at above prices. *Beeswax.*—We have no market at present. EARLE CLICKENGER,
Sept. 22. Columbus, Ohio.

ST. LOUIS.—*Honey.*—The demand for honey is still light with us. White clover, comb, 13@14; extracted, can, 7@8. Barrels, 5½@6½. Dark comb, 11@12. Extracted, manufactured stock, 4@5. Some sections adjacent to us have good fair crops of honey; but the general report will not make over ½ crop in this section. *Beeswax*, 21 for prime; select yellow, 22½@23. W. B. WESTCOTT & CO.,
Sept. 22. St. Louis, Mo.

BOSTON.—*Honey.*—1-℔. white, 18; 2-℔. white, 14@16. Extracted, 8@20. *Beeswax*, 25. Trade is quiet and supply is fair. BLAKE & RIPLEY,
Sept. 22. 57 Chatham St., Boston, Mass.

CHICAGO.—*Honey.*—Sales are being made in a small way at 18c for the best white comb in pound sections. Receipts are light, but there is sufficient to meet the requirements of the trade. Extracted, about 8 cents for best white. *Beeswax*, 22 for yellow. R. A. BURNETT,
Sept. 21. Chicago, Ill.

ALBANY.—*Honey.*—Market is slow, as not enough is coming to make a market yet. I don't see why bee-keepers persist in keeping honey back in the beginning of the season, the best time to sell, always. We are selling white-clover, comb, 15@20, according to style and size of comb. Mixed-clover, comb, 13@15. Buckwheat, comb, 12@14. White extracted, 8@9; buckwheat extracted, 6@7. Consignments solicited. H. R. WRIGHT,
Sept. 22. Albany, N. Y.

DETROIT.—*Honey.*—The market is about bare of all kinds. Best white comb, 17@18; dark, 16. Extracted, 8@10. *Beeswax*, 21@22. M. H. HUNT.
Bell Branch, Mich., Sept. 24, 1888.

CINCINNATI.—*Honey.*—No change from our last quotations. Demand is slow for all kinds of honey. Extracted honey brings 5@8c on arrival. Best comb honey, 12@16c, in the jobbing way. *Beeswax.*—There is a good demand, which brings 20@22c on arrival for good to choice yellow.
CHAS. F. MUTH & SON,
Sept. 27. Cincinnati, Ohio.

ST. LOUIS.—*Honey.*—We have to report a quiet market. We quote strained and extracted, in barrels, 4½@5½, in cans, 7½@9. Comb, 13@15.
Beeswax, prime, 21.
Sept. 24. D. G. TUTT GROCER CO.,
St. Louis, Mo.

FOR SALE.—About four tons of honey in first-class shape, in 1 and 1½ lb. sections.
JAS. HALLENBECK, Altamont, Albany Co., N. Y.

HONEY.

We advise bee-keepers not to sell before getting our high prices. State quality, quantity, and style of packages; send samples of extracted, with sender's name marked on same.

F. G. STROHMEYER & CO.,
18 21db **122 Water St., New York.**

☞In responding to this advertisement mention GLEANINGS.

WANTED.—To purchase one to three thousand pounds choice white clover honey in one-pound sections. Crates to average about 20 pounds each. J. T. CARSON, 18 21db
325 W. Main St., Louisville, Ky.

DADANT'S FOUNDATION FACTORY, WHOLESALE AND RETAIL. See advertisement in another column

NON-SWARMING QUEENS.

I now have 25 non-swarming queens, bred from the queen spoken of in August 15th GLEANINGS, page 649. I will take $4.00 each for them. They were raised in full colonies, and are laying. I will guarantee safe arrival by mail, or I will send a two-frame nucleus, including a non-swarming queen, for even $5.00. I shall keep a careful record of every queen sold, and will ask the purchasers to report to me next spring. R. B. WILLIAMS,
19 20db Winchester, Tenn.

☞In responding to this advertisement mention GLEANINGS.

RUBBER STAMPS. Send for Bee-Keepers' catalogue.
G. W. BERCAW, Fostoria, Ohio.

NATURAL STORES
FOR FALL FEEDING AND WINTERING.

We offer for sale 300 Langstroth and Root's Simplicity metal-cornered wired frames, with from five to ten pounds of mostly sealed (some wholly) new honey in each. Wired frames, 7½c per lb. Langstroth frames, 7c per lb. Delivered at depot. No foul brood ever within 100 miles.

19tfdb **HALLETT & SON, Galena, Illinois.**

☞In responding to this advertisement mention GLEANINGS.

FOR SALE.
FULL COLONIES OF PURE ITALIAN BEES,

In A. I. Root's Simplicity hive, only $4.00. Pedigreed Poland-China swine at reasonable prices. White and black ferrets; single ferret, either sex, $2.00; per pair, $3.50; per trio, $5.00. Pure White Leghorn fowls, single bird, $2.00; per pair, $3 50; per trio, $5.00. Safe arrival always guaranteed.
Address **N. A. KNAPP,**
19-20d **Rochester, Lorain Co., Ohio.**

THE BEE-KEEPERS' REVIEW

For September is specially devoted to "Food, and its Relation to the Wintering of Bees." If you wish to know the view of such men as Mr. Heddon, J. H. Martin, L. Stachelhausen, Dr. L. C. Whiting, Dr. Miller, R. L. Taylor, and O. O. Poppleton, read this number. Price of the REVIEW, 50 cts. a year. Samples free. Back numbers can be furnished.

THE PRODUCTION OF COMB HONEY.

A neat little book of 45 pages; price 25 cts. The REVIEW and this book for 65 cts. Stamps taken, either U. S. or Canadian. Address
W. Z. HUTCHINSON,
613 Wood St. **Flint, Mich.**

☞In responding to this advertisement mention GLEANINGS.

BEE-KEEPERS, TAKE NOTICE.

To introduce our sections we will from now until Jan. 1, 1889, sell A No. 1, all white, at $2.75 per 1000; second class, $2.25 per 1000. All other supplies at a correspondingly low figure. Sample sections and price list free. Address **R. H. SCHMIDT & CO.,**
19d New London, Waupaca Co., Wis.

AGRICULTU
COLLEGE

GLEANINGS IN BEE CULTURE.

DEVOTED TO BEES, HONEY & HOME INTERESTS.

Vol. XVI. OCT. 1, 1888. No. 19.

TERMS: $1.00 PER ANNUM, IN ADVANCE; 2 Copies for $1.90; 3 for $2.75; 5 for $4.00; 10 or more, 75 cts. each. Single number, 5 cts. Additions to clubs may be made at club rates. Above are all to be sent to ONE POSTOFFICE.

Established in 1873.
PUBLISHED SEMI-MONTHLY BY
A. I. ROOT, MEDINA, OHIO.

Clubs to different postoffices, NOT LESS than 90 cts. each. Sent postpaid, in the U. S. and Canadas. To all other countries of the Universal Postal Union, 18 cts. per year extra. To all countries NOT of the U. P. U., 42 cts. per year extra.

QUEENS INJURED IN SHIPPING.

IS HER FERTILITY PERMANENTLY OR TEMPORARILY IMPAIRED BY SHIPPING?

ON page 685 of GLEANINGS I find these words: "No, the confinement of a queen during a shipment of six or eight days rarely if ever affects her fertility. * * * We can speak positively when we say that shipment either by mail or express does not deteriorate the laying qualities of a queen." Now, I suppose, as a breeder of queens, if I would consult my own interests I should let this pass unchallenged; but I feel that duty and truth require me to protest a little from such a decision, when the facts along the line of injury to queens in shipment are so plainly to be seen, as I and others have often seen them. Probably no man in the U. S. has any more flattering testimonials according to the number of queens shipped than I have; yet this does not prove that none of the queens I have sent out have never been injured by shipment. By shipment I include all of the necessary evils attending the removal of a queen from her hive and home, and sending her to another hive and home where she is obliged to suddenly stop a profuse egg-laying, and continue in this condition for from three days to three weeks. If I am not mistaken, it was Mr. James Heddon who first called attention to this injury, attributing it at that time to the rough usage the queens received in the mails, saying that under no consideration would he have a valuable queen sent in any way but by express. When I read this, which was several years ago, I said this accounts for the unsatisfactory results I have obtained from queens which I have purchased that were sent me by mail, so for some time after that I ordered all of the choice queens which I purchased sent me by express. However, as I saw little difference in favor of those which came by express over those which came by mail, I concluded that I must look elsewhere for the trouble. In looking over the past to see where the difficulty lay, I saw that such a queen sent me by a noted breeder had not laid eggs enough during two years to amount to as much as one of my ordinary queens would lay in two months, so I wrote to him asking if he remembered whether the queen was prolific with him or not. His reply was that she was unusually so, and that at the time he took her out of the hive she was keeping ten L. frames full of brood. Later on I received another queen of another noted breeder, for which I paid $12, thinking to get the best there was in the country; but while she lived she was about the poorest layer I ever had, yet I was assured that she was "just perfection before she was shipped." Soon after this I commenced to send out queens myself; and during my experience as a breeder and shipper of queens, some five or six instances have come under my notice, of queens which proved of no special value as to prolificness after they were received by the purchasing party, while I know they were among the best, if not the best queens as to prolificness I ever had in my yard. While studying on these things, and looking for a cause, my eye chanced to rest on a few sentences regarding the shipping of queens, written by Bro. Hutchinson or Hayhurst, if I mistake not, in which he said that the removing of a queen from a full colony during the height of her egg-laying, and immediately sending her off, caused her to be unprolific ever afterward, and that, to remedy this, they caged such queens a day or so before they send them off, which allowed them to rid themselves of their eggs before they were subject to the rough usage they must be subjected to in the mails. I may not have quoted this just right, but have given the impression it left on my mind at that time. Soon after this I saw where another of our brethren recommended the taking of queens out of full colonies, which were to be sent off, and leaving them in a nucleus a week before they were shipped, for in this way they became like a queen which had just got to laying in a nucleus, and such queens were scarcely ever injured by shipment. Putting the whole together I believed that the trouble lay in the sudden and unnatural stopping of a prolific queen from laying, so I went about experimenting to see if I were right. I caught two of my most prolific queens and caged them the same as I would do for shipment, giving them the usual number of bees for an escort, placing them in my shop, where I would occasionally handle them and give them about the usage I thought they must receive when going by mail or express. Others were caught and handled as carefully as possible, all being kept from the hive from one to two weeks, some even having the workers renewed on account of the first set dying from confinement, and upon returning them as heads of colonies again, at least one-third of them proved of little value after that, none of them coming up to their former prolificness afterward while they lived. Having solved the matter to my satisfaction, that queens were injured by suddenly stopping them from prolific egg-laying, and not by the usage they received in the mails, I next went about finding out if this unprolificness had any effect on daughters from these once prolific queens, but now almost valueless mothers, and am pleased to be able to go on record as saying that, so far as I can see, such injured queens give just as prolific daughters after their confinement as they did before. Since then my advice has always been, where I have had occasion to say any thing about it, that the receiver of a queen which he has bought for breeding purposes, go about rearing queens from her immediately, as soon as any of her brood is old enough to use for that purpose. In this way the buyer gets a fair return for his money, even if his queen does not turn out all that he would have her be, as has been the case with many I have purchased.

G. M. DOOLITTLE.

Borodino, N. Y., Sept. 17, 1888.

Friend D., the quotation you make was from some of Ernest's replies. Very likely he put it too strongly, for we state in the A B C book, and I have frequently stated through GLEANINGS, that occasionally a queen will never lay at all after a trip through the mails. This matter has come up because of uncharitable conclusions that have been drawn in regard to some of our queen-breeders. As an illustration: Some one who does not cultivate the spirit that "thinketh no evil," sends for a choice queen. She lays very little after being received, or never lays at all. He feels indignant, and sets the man down as a swindler, saying he did not believe the queen ever was a good layer. I should say, that perhaps one queen in a thousand of those we send out by mail fails to lay after being received; and since you speak of it, I do remember that such reports seem to have come from the very best layers. Now, although this sudden stoppage of egg-laying may result in damage, I would under no circumstances want a queen kept three or four days out of the hive, before being mailed to *me*. Queens suddenly removed from the hive do not always stop laying eggs at once. I have many times seen them drop their eggs on the wires of their cage, and I have seen the accompanying workers greedily devour them as fast as they were laid. I think we have had reports of queens depositing eggs while in a wire cage, over the frames in a hive, and that the workers in the same hive placed them in cells from which to raise queens. Now, to carry the matter so far as to say that *every* queen carried by mail or express is injured, is, I think, going to the other extreme. As good layers as we ever had in our apiary were among the imported queens that crossed the ocean; and queens received every spring from the remote South have given as good results as any among those that were never removed from the hives at all. I should say, that certainly not one queen in ten suffers any injury whatever after she fully recovers from her trip through the mails. We should be very glad indeed to hear from those who have purchased queens largely. Are those that have taken a trip through the mails less prolific than those that have never been moved from their hives?—Your concluding point is a good one, and I would advise every one who purchases a high-priced queen to set about rearing stock from her as speedily as possible—not only on account of her passage through the mails, but because any queen is liable at any day to die or to stop laying. Just so with a valuable strawberry-plant. I would make it put out runners, and get some younger plants the very first thing I did; then, if you choose, make the parent plant bear fruit, to see what it is like. The only queen I ever owned, that lived to be four years old, was an *imported* one, and she was fairly prolific during the fourth season.

HONEY AND ITS ANALYSES.

SOME ADDITIONAL SUGGESTIONS FROM FRIEND STACHELHAUSEN.

THE question has come up, "Is it possible by chemistry to tell whether honey is adulterated or not?" I fully agree with the article of Prof. Cook, in GLEANINGS, page 640; but we know of some ways to detect certain adulterations.

To make it sure, the first question is, "What is honey?" This is not quite easy to answer, for the chemist. We know that honey of different flowers has quite different composition. Dr. Sieben analysed 60 different samples of surely pure honey, and found from 68 to 79% of dextrose and levulose—an average of 74%. Of dextrose there was 35%, and levulose 39%. Sometimes the quantity of both kinds of sugar is exactly the same; this was found in 11 samples. In 12 samples, more dextrose was found than levulose, with the greatest variation of 45% of dextrose to 34% of levulose. In 37 samples, more levulose than dextrose was found; the greatest variation again being 22% of dextrose to 47 of levulose.

Cane sugar was found in less quantity. In 27 samples out of the 60, no cane sugar at all was found; 21 samples contained less than 2%, and 12 samples more than 2%. In *maximo*, 8.8% of cane sugar was found. Water was found in the honey to the amount of 16 to 25%, and other ingredients (non-sugar) 1 to 9%.

In the nectar of flowers is more cane sugar, sometimes cane sugar only. V. Planta proved, that in the nectar itself is a ferment which is able to change the cane sugar to reducible or invert sugar, so the nectar itself, if only evaporated, would by and by change the cane sugar. But we are nearly sure, that this changing of the sugar in honey is mainly caused by the saliva of the bees. So, newly gathered and not quite ripened honey may contain more cane sugar; but by the presence of the said ferments in the honey, the cane sugar is by and by changed half to dextrose, or grape sugar, and half to levulose, or fruit sugar. The older the honey, the less cane sugar will be found. Nevertheless, it is possible that some kinds of honey contain more cane sugar than 8.8%, so we can find a correct answer to the question, "What is honey?" by a large number of analyses, only done by quite the same method. Hereby some points should not be overlooked. For instance, from what flower is the honey? is it extracted or strained, warm or cold? from capped or uncapped cells? how old is the honey? etc. Here is a great field for chemistry.

Prof. Cook tells us that 12 and 16% of cane sugar has been found in honey. So we see it is not possible to tell with certainty that honey is adulterated by cane sugar except we find a large quantity, say 25% or more.

Another difficulty arises here. It is possible to change the cane sugar to dextrose and levulose before adulteration, at least partially, and then the adulteration is quite impossible to find out. Fortunately, adulteration by cane sugar will not pay nowadays. If the honey is adulterated, it is certainly by glucose, produced by boiling starch with water and a mineral acid. Hereby the starch is changed at first to dextrine, and then to dextrose, or grape sugar, and no levulose will originate. If the commercial glucose were entirely pure, we could not find out the adulteration, except by finding a surplus of dextrose, and would meet the same uncertainty as with cane sugar.

The lower grades of glucose contain a small quantity of gypsum, and this is easily proved by pouring barium chloraticum into the solution, which gives a precipitate. But the best commercial glucose is never entirely pure. It is supposed that glucose contains 66% dextrose, 14% dextrine, and 20% water. But Dr. Sieben found another ingredient which ferments like dextrose to nearly the same quantity of alcohol, but has less reducible power. This is maltose. He found 22% dextrose, 16% maltose, 42% dextrine, and 20% water. This is glucose manufactured in Europe, from potatoes; our American glucose made from corn may be different, and it is necessary at first to know exactly what is the composition of this commercial glucose.

The adulteration by glucose is proved if we find a certain amount of dextrine. For this purpose the honey is solved in water, and then alcohol will precipitate the dextrine. But sometimes pure honey, too, gives a precipitate, so this way is not quite sure. If we boil the honey two hours with 2% sulphuric acid, the dextrine is changed to dextrose, and so we can find how much *more* sugar is in the solution after boiling. But by this process a part of levulose is decomposed.

The polariscope is very uncertain, not only because cane sugar, dextrose, and dextrine, deflect the rays to the right, so we can't say which it is, or what caused this deflection, but the non-sugar in the honey too, changes the deflection in different ways. Nevertheless the polariscope is a help, and honey with a deflection to the right is very probably adulterated.

Dr. Sieben gives four new different ways to find dextrine with certainty, in his article, "Ueber die Zusammensetzung des Staerkesirups, des Honigs, und die Verfaelschung des letzeren," in the *Zeitschrift des Vereines fuer Ruebenzuckerindustrie des deutschen Reiches*, 34, pages 837-883, Berlin, 1884, by Kayssler & Co.

Unfortunately I am not in possession of this article, and so I can't reproduce these new methods, but they are of interest to the chemists only; but if the chemical department of the Agricultural College is willing to experiment in this matter, much troublesome labor may be saved by reading the said valuable article.

We bee-keepers can learn many other things by these analyses for practical use. For instance, Prof. Cook asks: "Why will bees die on the purest commercial glucose, and thrive on good honey?" Sometimes the gypsum may be fatal to them, then the dextrine has to be changed to sugar, and this is done at the expense of bee-vitality in the winter—quietude, or the dextrine may not be digested at all, and so cause dysentery. Further, glucose contains no levulose, and this seems to be the best winter food. We do not know which is the correct answer.

Cane sugar, I believe, is a good and sure winter food, if changed to invert sugar artificially by the bee-keeper, by boiling with a small quantity of acid, or by the bees in the fall before capping. Non-invert cane sugar would crystallize, and the bees would need water to dissolve it, and then it needs more digestive power.

What causes the crystallization of honey? If the bees have candied honey for winter food, do they need some water to dissolve it, or is the temperature of the cluster always sufficient to make the honey liquid? If so, by what circumstances? Has candied honey of the same source another chemical composition than liquid honey?

In other journals the question was discussed: "Can sugar be made out of honey?" The chemistry gives an answer to this question. To extract the few per cent of cane sugar from the honey is possible, but would never pay. We could extract the grape sugar, or dextrose, and get about 40%. This sugar for commercial use would hardly be worth more than a good grade of corn sugar, and the reader will see that it is impossible to make the business pay. To change the dextrose and levulose to cane sugar again, we know of no way as yet.

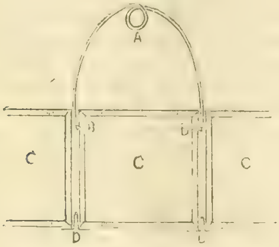
Selma, Tex. L. STACHELHAUSEN.

Friend S., you seem to be at home in this matter of the chemistry of the different sugars. I remember, when a boy, expressing surprise that it was possible to convert starch into sugar, and cane sugar into grape sugar, but that no power of the chemist had at that time enabled him to convert grape sugar back again into cane sugar. If I am correct, we stand just here still, and it is therefore at present impossible to convert honey into sugar. I have a great many times been inclined to believe that the operation of candying really changed the honey in some respect. When one gets tired of liquid honey he can sometimes eat candied honey with relish; and a great many people say they do not like candied honey at all, when, if you give them the same honey after it has been melted, they pronounce it beautiful and delicious. Even spreading candied honey on hot cakes, if the cakes are hot enough, seems to give it quite a different taste. Now, is it not true that there is at least some sort of a change made when honey is changed to the solid state and vice versa?

REMOVING SECTIONS.

SHALL WE DO IT EN MASSE OR INDIVIDUALLY?

I HAVE just made and tried a small instrument for removing sections from the T super, and wish to submit a drawing of it for your inspection and comments. It is not a very great invention, as you will see. It can be made easily by any one, with a three-cornered file.



PERING'S IMPLEMENT FOR REMOVING SECTIONS.

It is made of steel spring wire, about the size of a common bucket-bail. The coil A is to cause the ends B B to spring outward when not in use, and will easily let go of a section. C C C represent three $4\frac{1}{4}$x$4\frac{1}{4}$ sections in the T super. D D, T tins. I use the T tins on top also, and when they are removed I push the instrument into the spaces made by the T tins, and, pressing the points B B, which are very sharp, into the section C, and by pulling upward, the points B B get a firm hold, and the section is easily and quickly removed. The coil spring A causes it to let loose easily. After the first four sections are removed it is easy enough to remove the rest. But it is a very difficult job to remove the first four; and one in this locality can not leave the super on the hive until all the sections are sealed, as it is spoiled by the bees running over it too much. With this instrument I can remove the honey without removing the super at all, but simply apply the instrument, remove four sections, either in the middle or at the side of the super; shake the bees off, and the remaining sections are more quickly removed and cleared of bees than if the bees are drummed and smoked out, and then a "follower" be used. After the first row of sections is out, the rest are about as easily taken out and crated as to part and crate them after they are taken out *en masse*.

A. H. PERING, JR.

Clear Creek, Ind., Aug. 6, 1888.

Your implement in some cases may prove to be very handy. It is true, it is difficult to get every section in the crate filled out; and, if left upon the hive long enough to accomplish this purpose, the honey will become travel-stained. We should very much prefer to remove all the sections *en masse*, when the *majority* of them are capped over. Those not completed can be returned. At the close of the honey-flow it might be advisable to use your implement, to shift those partly finished to the center of the super.

EXTRACTING HONEY AND FEEDING SUGAR SYRUP IN ITS STEAD.

WILL IT PAY TO DO THIS WITH HONEY AT 15 CTS. A POUND, AND SUGAR AT 8 CTS.?

MR. ROOT:—I have a notion to extract *all* the honey from my 80 colonies, and feed sugar syrup for winter. I can sell the honey for from $12\frac{1}{2}$ to 15 cts. Do you think it advisable? I could have all extracted and fed up by the 15th of October. Do you think they would "cure" and cap the syrup that late? Where 20 lbs. of sugar makes 28 lbs. of syrup, can we count, in feeding it, the full 28 lbs. as that much stores for winter, or will the bees evaporate it down any? I don't like to trouble you this way, but I want your advice.

WM. M. YOUNG.

Nevada, O., Sept. 24, 1888.

Friend Young, I presume there will be some difference of opinion in regard to this matter. But my decision would be, from what I have experimented (and from what I have read about the experiments of others,) against it, provided, of course, the honey was sealed up in the combs, or mostly sealed up. In extracting at this time of year it will be impossible to throw the honey all out of the combs. Of course, the bees will clean it up, but this will set them to secreting wax, especially in connection with the feeding; and many little bits of comb will be built throughout the hive, causing them to consume enough honey or sugar syrup to secrete wax scales for the cappings, and these bits of comb mentioned. Now, my opinion is that you can not extract all the honey in the hive, and feed it back again to the same bees during the month of October, without losing *at least a half of it*. May be I am putting it too strongly; if so, I should like to have the Question-Box folks straighten me up. Twenty pounds of sugar will make 28 pounds of syrup, almost if not quite as thick as honey; but before the bees get it into the cells, and get it capped, there will be a loss of from one-fourth to one-third the whole amount. I do not exactly know where it goes, unless it be that it takes several pounds of feed to rouse the bees from their comparatively inactive state during the fall, and get them filled with honey, ready to secrete wax about as they will during the height of the honey-flow. Besides this, most colonies will make a little spirt in brood-rearing, no matter how you feed them. If this is what you want in order to have young bees for winter, it may be all right; but my opinion is that we are just as often successful in wintering where the bees do not get "steam up" at all (if I may be pardoned for using the expression), during the month of October or later. I am not really satisfied that we need any brood-rearing in October or November either, for successful wintering. In summing up, then, the reply to your query is, that I would not do any thing of the sort, as you propose. If you are getting fall honey from autumn flowers, however, so that the bees are already filled with honey, and secreting wax to some extent, it would make quite a difference. But even in that case, I should prefer making them store their surplus honey in sections rather than to disturb the sealed stores which they have in the brood-nest.

SELLING HONEY ON COMMISSION.

H. R. WRIGHT, ALBANY, N. Y.

MR. ROOT:—I sent Mr. H. R. Wright, of Albany, N. Y., a few hundred pounds of honey in comb, safely put up—one-third white, one-third with sections commenced with white and filled in with amber honey, and the other third was clear buckwheat honey; and, too, I sent a man to help handle it, and it was got to Mr. Wright in fine condition; and when returns were made it came to 7 cts. per pound, out of which was taken express charges and commission, saying nothing about the expense of the man, his railroad fare to and from Albany, and expenses there, nearly two days. I could have sold my honey at home for 5 cts. per pound, and made money. It was the first time I had ever tried a commission merchant, and I thought it would be nice to get my money all in a pile, but the fun was all taken out of me, and I shall never send another pound of honey to be sold on commission. GREENY NO. 2.

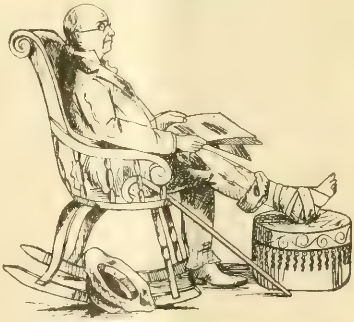
Patten's Mills, N. Y., Sept. 16, 1888.

Friend G., it does seem as if 7 cts. a pound for comb honey was a pretty small price, during this year of scarcity; but I am afraid you are a little severe on our friend Wright. You admit that your honey was mixed, and I believe that the general experience is that mixed honey is hard to dispose of at a good price. The clear buckwheat honey, however, it seems to me, ought to have sold for more than 7 cts. a pound. Did you not instruct Mr. Wright to sell it at once, and make quick returns? Another thing, if you did not want him to let it go at so low a price as 7 cts., your commission man should have been limited in price when the honey was consigned to him; and I am sure, my good friend, that you went to much more expense than was necessary. At the last national convention, the decision was almost unanimous that honey can be sent safer by freight than by express, to say nothing of the enormous expense of shipping by express. I should never think of sending a man along to help handle the honey, unless I had something like several tons. As Albany is not very far away from you, this would make a difference. There is one advantage, it is true, in sending a man; and that is, you know just exactly how the honey stood transportation. You have not told us what size of section you used. It surely could not have been the small ten-cent sections which Mr. Wright so strongly recommends. In regard to sending honey to be sold on commission, I feel quite certain that a great many bee-keepers get a good deal better prices by selling at home than from commission merchants, as you state it; but they do not often get their money in a lump.

RAMBLE NO. 7.

THE CLAM-SHELL APIARY.

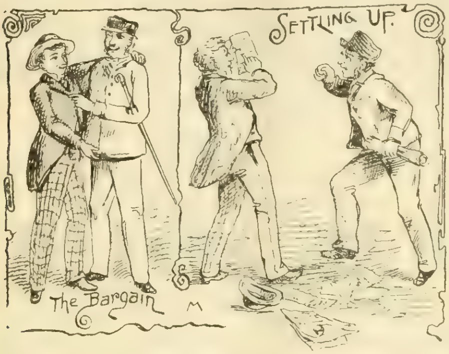
A SHORT ramble from my own yard, and I am again surrounded by the busy hum of *Apis mellifica*—this time in the apiary of Mr. Robert Bump. This brother bee-keeper is working on toward 70 years of age, and is afflicted with an inflamed ankle, and I gladly answer his call of distress, and am here to do work that he can not attend to. The request that came to the Rambler was to remove surplus boxes and to extract honey.



"THIS DON'T LOOK LIKE A GOOD BEE SEASON."

Mr. B. has a home apiary of 160 swarms in a yard in the rear of his house, upon ground sloping gently to the south, and shaded with fruit-trees and grapevines. The hives are nearly all the old-fashioned box hives, or what was introduced into this part of the country many years ago as the Clark hive; dimensions, 10 x 12, and 14 inches deep. Mr. B. makes these hives yet, and does not take the bee-journals, averring that nothing new can be learned in them. The first thing I noticed as peculiar was a clam-shell on the cover of each hive. Now, if you ever noticed it, a half clam-shell has considerable cling to it when placed upon a board hollow side down; and if placed upon different portions of the hive it signifies different conditions inside the hive. I found if there was no clam-shell there were no crates on the hive, etc. I should say, that clam-shells are a great improvement over Bro. Doolittle's tacks and pebbles. The clean white inside can also be written on with a pencil. Let us have the clam-shells instead of slates.

I removed from the hives 85 fifteen-pound crates, not all completely filled with honey, and extracted about 100 lbs. of honey in a home-made extractor that worked finely except the wire cloth for supporting the comb, which was too fine. The yield is a fair indication of the average yield in this locality for this year. Mr. B. makes his own hives and sections, and uses a horse-power for the purpose. His apiary is located in a little village of about a dozen houses, and no one is ever molested by the bees. There have been only 20 new swarms this season, but in a good swarming-season Mr. B. has had seven swarms all alight together. Wasn't that lovely? Let us all drop the bee-journals and adopt the clam-shell method!



KEEPING BEES ON SHARES, AND HOW IT USUALLY TURNS OUT.

Mr. B. has altogether about 250 colonies—160, as before stated, in the home yard, and the rest let out to various individuals in his own and adjoining towns. His plan for letting out bees is as follows: Any person desiring bees on shares must comply with the old-time regulation—furnish all material, hives, sections, etc., and give one-half of the honey and one-half the new swarms, and the bees are usually let out for a term of five years. My investigations revealed the following facts: The first 50 swarms that were put out in this way were to a man who owned a grist-mill, a cider-mill, a blacksmith shop, a potato-hook factory, a trip-hammer, a saw-mill, and a bee-keepers' supply shop. This man hired but little help; and as he did not make $1000 the first year from the 50 colonies of bees, he wanted to return them. This fact, and the unprofitable fact that but little honey was realized to the owner of the bees, made him feel, as he forcibly expressed it, like kicking the lessee's coat-tails. The owner didn't want the bees back again, and found another man to take them. This man had a poor season, and lost nearly all during the winter. Another young man to whom he let 75 colonies had bad seasons and wintering troubles, and at the expiration of the term a misunderstanding to the amount of 15 swarms resulted, and, I suppose, thoughts of kicking again predominated.

To another man, about ten miles away, twenty colonies were let; and every time the owner called for honey there was none to be found; every season was bad, and the lessee was blue—every thing was going to the dogs. Still, the neighbors say he has sold honey. This man has also had disastrous wintering troubles; and when the final settlement comes there will be imaginary kicking again.

Others who have taken bees have made returns every year; but when the bees were returned, most of them would die the following spring. The parties were probably honest, but removing them at a wrong time might have had an influence toward spring dwindling. In all of these cases the parties were inexperienced, and the object in taking the bees was to get started in the business by allowing them to swarm freely; if there was no loss in wintering, a large number of colonies could be obtained. In the five years, the original stock and many new swarms would be returned, for the lessee has the start he wanted and would give up running bees on shares. The method is, in my estimation, full of faults, and a source of much trouble. The Rambler advises (every time he is asked about taking bees on shares) the would-be lessee to buy one or more swarms of bees, according as he is able, and build up, and let "on shares" alone as a dangerous thing. Any one so inclined will be wise if he heeds— THE RAMBLER.

Well done, friend Rambler. The clam-shell idea is, so far as I can see, an excellent one; and the moral you point us, both in the picture and in the description, is a good hit on a point that sorely needs it. I have known two friends, just like those in the picture, talk about some sort of partnership in the way of bee-keeping, with the best feeling imaginable, and with perfect confidence and faith in each other. In fact, this confidence in each other is one of the sources of trouble. A great deal of talking is done, but neither one of them thinks it best to put it in writing. In your case I notice they did have several documents; and especially were these documents produced when settling-up time came. Almost every instance I remember, there was dissatisfaction on both sides. The man who had the bees went to planning and figuring so as to come out without loss. The man who owned the bees planned and figured also; that is, he planned and figured what his neighbor ought to do. When they got through, each one had found the other out. This whole matter reminds me of our Wants and Exchange column. I do think, dear friends, it would save a world of trouble, and perhaps a world of unfriendly feeling, if we were all of us in the habit of paying cash down for what we want, and have it done with. If it is not possible to pay cash down, have it charged on a book, in plain dollars and cents, and let both parties look at the book if possible, and see that it is right. One trouble about taking bees on shares is, that, even where there is writing, there will be many points that writing does not cover. But after what I have said, if you do find it advisable to let out bees, or to rent them, make up your mind beforehand that you will not quarrel with your friend, even if it takes every bee and every drop of honey to keep peace. The trouble is, we are all human, and bee culture needs a good deal of brains. Well, the one who has the bees in charge is pretty sure to do the brain work in such a way as to favor himself. Now, if he has bought the bees right out it is perfectly right and proper to figure so as to get the very best possible result for *himself only*. He is not to keep in mind constantly that part of every thing is to be *divided*. If you want to know how a Christian should behave in partnership matters, read the account of Jacob and Laban, in Genesis, chapters 30 and 31.

BEES WORKING IN SECTIONS NOT OVER THE BROOD-NEST.

DR. MILLER GIVES SOME FACTS FROM ACTUAL EXPERIENCE.

On page 634 of GLEANINGS, friend Doolittle says: "Did either one of you ever fully test the matter you are there talking about, or have you reasoned it out in theory?" Doolittle is one of the men I like to get into a struggle with. Did you ever see two or three bees trying to get a dead bee out of a hive? Part of the time they pull directly apart, as if fighting for possession of the dead bee, and then part of the time they pull together; but eventually, either by both pulling together or one giving up to the other, the dead bee is removed. A careless observer would say they were fighting about the dead bee. In the same way we may fight with each other. It matters not who gives up, so we get the dead bee out. To answer your question, Bro. Doolittle, I will say I have tested the matter hundreds of times, and have had supers by the hundred in which the sections were well started in the middle and at one side, while the sections at the other side were untouched. I think I never knew an exception to the rule, that the bees commenced work first in the sections over the brood-nest; and not till the supers were reversed did they commence work in the other sections, except in a very few cases, and then I think they were badly crowded. I had no theory whatever in the matter. It was simply the continued experience of several years.

And now I will try to comply with your request, friend D., to tell why your bees work well two feet or more away from the brood. Before I ever heard of contraction I had bees go as much as four feet away from the brood to store honey. The explanation lies in a single word—*heat.* Friend Root has already intimated as much. In addition to what he has said, there is a further reason why your bees act differently from mine. Your bees are closed up more than mine, so that the sections over the dummies are warmer than mine. I suspect mine are too open. My hives are ten frame, and the super does not extend over the whole width of the hive, but leaves a space of more than two inches uncovered. This produces the effect that no warm air comes to the outside sections, only as it comes sidewise from the other sections. You have helped to hasten a decision that hereafter I would have my hives closed up warmer.

Now, Bro. Doolittle, that you have whipped, let me ask *you* a question. "Did you ever fully test the matter," so as to *know* that bees work just as soon and as well over the dummies as over the brood-combs? If a super of empty sections is put on a hive, don't the bees commence over the brood first? Are you sure that, after the sections are all started, the bees do not work just a little more freely in those over the brood?

WAKING UP SLEEPY BEES.

Friend Root, on page 638 you think a man of my experience ought to have known enough to rouse up the bees, even if it was cool, by pouring warm feed over them. Yes, I reached that experience long ago, and have gone clean beyond it. I have learned by experience that there are times when such means are ineffectual to arouse them. In the case under consideration, I did pour the warm feed right over the bees; but if it roused them up enough to clean themselves up, they only quieted down again. You needn't tell me I should have daubed the sides of the feeder so that they would be led clear to the feed. I knew that too. I tell you, those bees wouldn't be aroused. But you live in Medina, and I don't suppose you ever have weather the first of October such as many of us have. I don't believe that matter of climate is considered enough. You and I, probably, would not quarrel about chaff hives or cellar wintering if we both lived in Medina or both in Marengo. You talk about your bees troubling peaches. Why, dear friend, my bees never touch a peach. They would have to travel miles and miles to find one. A peach tree won't live here. Even the apple-trees that you grow will not live here, and we have a small list of extra-hardy ones whose names you would hardly recognize. So, many times I think we would understand one another better if we kept in mind the difference in climate.

BLOWING SMOKE IN THE ENTRANCE.

You say, page 640, a very little smoke over the top of the frames is sufficient. I rather like to give them a little whiff at the entrance, before I touch the hive at all. The guards, perhaps the most irascible in the whole hive, are there, and the slight jarring the hive receives in having the cover removed, and in other manipulations, is often sufficient to start them out for an attack; and, once out in the air, they annoy one for some time. Allow me to emphasize for beginners one word you use. Blow the smoke *over* the frames. It is rarely necessary to deluge the center of the cluster. Point the nozzle of the smoker across the frames, not down between them.

HOW TO GET RID OF MORELLO CHERRY-SPROUTS.

In reply to your question on p. 652, I had a hundred Early Richmonds on morello roots, and the latter sent out thousands of sprouts, which, if let alone, would have made an impenetrable thicket in a few years. Persistently keeping them cut down close to the ground is the only way I know to do any thing with them, and it is no worse than to keep down many other kinds of weeds. Part have been cut down with a scythe and part with a grub hoe, and I am not sure there's any difference. A large part of the ground has remained free from sprouts for a year or two. Whether they are entirely discouraged, or are only waiting their chance to come up again when they think no one is watching, I do not know. C. C. MILLER.

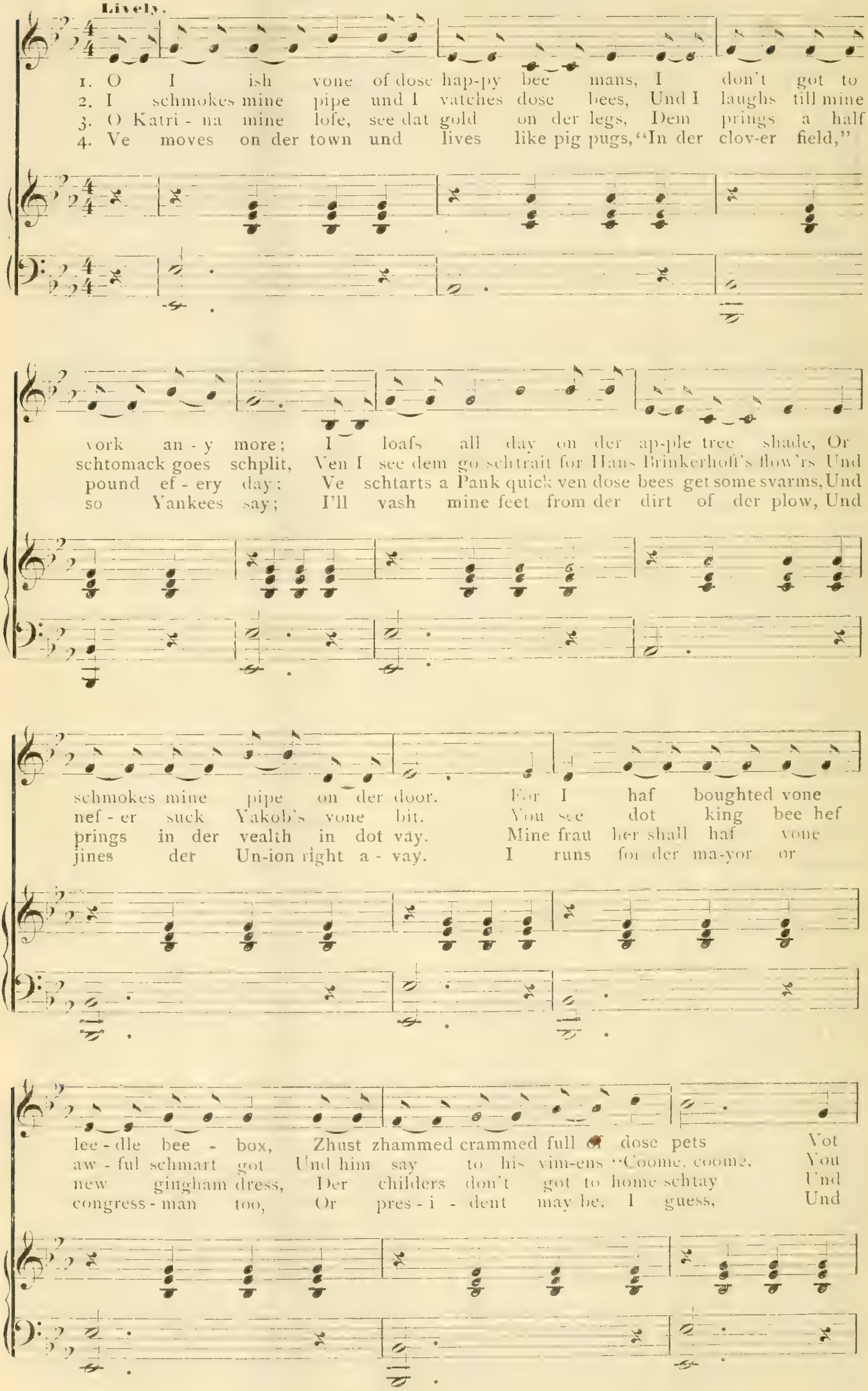
Marengo, Ill., Sept. 4, 1888.

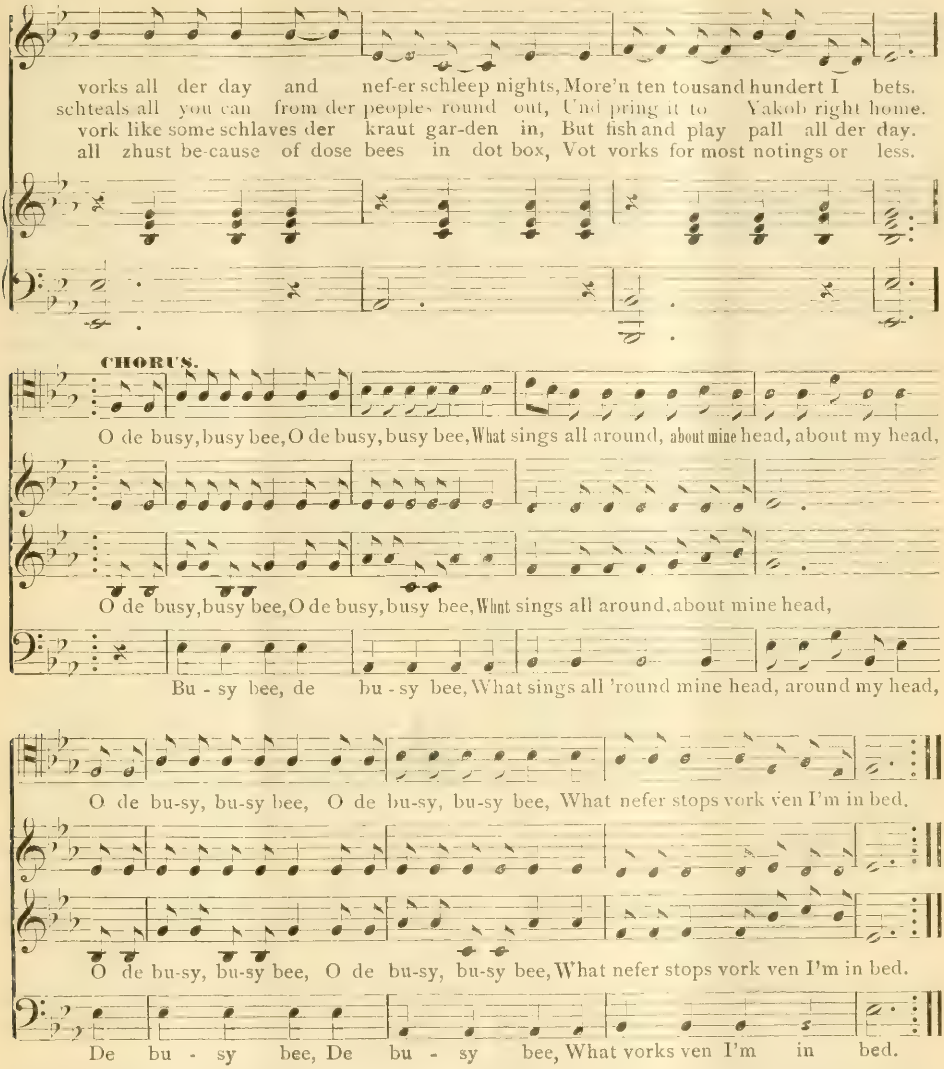
Well, old friend, if there are no peaches growing on trees within miles of you, there certainly is great difference in locality between us. I have sometimes felt sorry for you to think you would persist in lugging your bees into the cellar when chaff hives answer us completely; but I did not for a moment dream that your locality was so much colder than ours that you could not raise apples and peaches—that is, such apples as we have. I take it all back, and beg your pardon.—In regard to those cherry-sprouts, I think I would chop the cherry-trees down, and plow every thing under before I would have such unsightly-looking brush as we see around cherry-trees in a good many places.

Eugene Secor.

DOT HAPPY BEE MAN.

C. C. Miller.


Lively.
1. O I ish vone of dose hap-py bee mans, I don't got to
2. I schmokes mine pipe und I vatches dose bees, Und I laughs till mine
3. O Katri - na mine lofe, see dat gold on der legs, Dem prings a half
4. Ve moves on der town und lives like pig pugs, "In der clov-er field,"
vork an - y more; I loafs all day on der ap-ple tree shade, Or
schtomack goes schplit, Ven I see dem go schtrait for Hans Brinkerhoff's flow'rs Und
pound ef - ery day; Ve schtarts a Pank quick ven dose bees get some svarms, Und
so Yankees say; I'll vash mine feet from der dirt of der plow, Und
schmokes mine pipe on der door. For I haf boughted vone
nef - er suck Yakob's vone bit. You see dot king bee hef
prings in der vealth in dot vay. Mine frau her shall haf vone
jines der Un-ion right a - vay. I runs for der ma-yor or
lee - dle bee - box, Zhust zhammed crammed full of dose pets Vot
aw - ful schmart got Und him say to his vim-ens "Coome, coome, You
new gingham dress, Der childers don't got to home schtay Und
congress - man too, Or pres - i - dent may be, I guess, Und

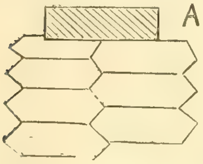

vorks all der day and nef-er schleep nights, More'n ten tousand hundert I bets.
schteals all you can from der peoples round out, Und pring it to Yakob right home.
vork like some schlaves der kraut gar-den in, But fish and play pall all der day.
all zhust be-cause of dose bees in dot box, Vot vorks for most notings or less.
CHORUS.
O de busy, busy bee, O de busy, busy bee, What sings all around, about mine head, about my head,
O de busy, busy bee, O de busy, busy bee, What sings all around, about mine head,
Bu - sy bee, de bu - sy bee, What sings all 'round mine head, around my head,
O de bu-sy, bu-sy bee, O de bu-sy, bu-sy bee, What nefer stops vork ven I'm in bed.
O de bu-sy, bu-sy bee, O de bu-sy, bu-sy bee, What nefer stops vork ven I'm in bed.
De bu - sy bee, De bu - sy bee, What vorks ven I'm in bed.

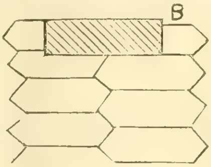
Desire has been several times expressed for one or two genuine bee-keepers' songs. The officers of the N. A. B. K. A., in accordance with this desire, thought best to have a couple of appropriate songs, to be sung at one or two sessions of the conventions to be held at Columbus. Very fortunately, they were not obliged to go outside of the bee-keeping fraternity to get either the music or words. Dr. Miller was selected as the music composer, and our friend Eugene Secor the composer of the words, and your humble servants to publish the same. The song above is the first one of the two that have been prepared; and although we anticipate the next national convention about two or three days in its publication, we do so that our readers may have a little time to "practice up." Both the music and the words are unique and lively. Our friend Secor is to be congratulated on catching the German idiom, and so adroitly weaving it into a spicy poem. Friend Miller is to be congratulated on being able to compose a piece of music which fits the circumstances so well. Some of our readers, and especially those whose articles have not appeared, for the reason that they have been crowded out, may feel that we are taking space for something that is not so important as some other matter. Dear friends, variety is the spice of life, as you have heard so often. A journal must not be all long articles, but it must have short ones, notes and queries, numerous other departments, and the whole assisted with appropriate engravings; yes, and a lively song occasionally on its pages will greatly vary the programme as well as at the convention. We doubt not there is some one in nearly every one of the eight thousand families and over, where GLEANINGS visits, who will be able to play this piece of music, and perhaps render the words with the voice in accompaniment, with all the "vim" characteristic of "Dot Happy Bee-man." The next song will be published in our issue for Oct. 15. If you are not able to attend the convention, we hope you will be able to hear the song at home. We wish you might all hear Dr. Miller render it in his bright happy way, together with the peculiar German accent which he has the reputation of "getting off" so well.

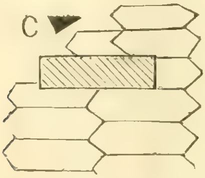
HOW WIDE SHOULD WE HAVE OUR TOP-BARS?

WHY THE BEES BUILD BRACE COMBS ABOVE THE TOP-BARS.

THE wired frames sent me have caused me quite an unexpected annoyance, the knowledge of which may be of some use to the bee-keeping fraternity. Up to this time I made my own frames with top-bars one inch wide and three-fourths of an inch thick. With such top-bars I had very little brace comb built between the frames and the section boxes. I do not use honey-boards. With yours, brace combs are built everywhere. Upon investigation it seems, first, that the bees draw the foundation and build the comb longer than the width of the top-bar, Fig. A.







Then, finding the cells unsupported on the upper side, they continue to build on the side of the bar, Fig. B; and finally on the top, Fig. C. At last they fill between the top-bar and the section boxes or the honey-board, if one is used, leaving only the passages necessary to their going and coming. The inference is, that, if the top bar were as wide as the comb is thick, there would be no such prolongation. Perhaps the extra thickness of the top-bar would also help. ADRIAN GETAZ.

Knoxville, Tenn., July 4, 1888.

Friend G., I am glad you have called up this important question. Years ago I made numerous experiments on a large number of hives, in regard to the width of top-bars, trying them all the way from ¾ of an inch wide up to 1⅛. The latter made the most trouble and inconvenience of any widths tried. The ¾-inch top-bar pleased us in some respects, but it was open to the objection you give in your drawings. But it seems to me you have started out with a wrong impression in regard to the width of the cells in brood comb. I decided that ⅞ inch was as near right as we could get the average thickness of brood comb; therefore when the brood was carried clear up to the top-bar, the sides of the top-bar would be exactly level with capped brood, and I think you will find this is correct. Now, it is true that the bees often store honey for an inch or two above the brood; and if they are crowded for room, these honey-cells will project beyond the top-bar; but after using top-bars one inch wide, 1⅛, and 1¼ inches, for a series of years, we decided we had least trouble with those ⅞; and if you have not experimented very long in the matter, I think you will come to the same conclusion. The extra thickness, up and down, of the top-bar, will certainly help the matter of brace combs; and one of our Canadian friends, Mr. J. B. Hall, by having top-bars over one inch in thickness, accomplishes pretty nearly the same result that Heddon does with his break-joint honey-board; that is, the bees do not fasten the crates holding the sections to the top-bars, with wax and propolis; but can we afford to have our top-bars an inch or more through, up and down?

BUGS AND BEETLES.

HUMMING-BIRD MOTHS, ETC.

MR. M. A. KELLEY, Milton, W. Va., sends me a "bug"—it is a beetle—and a "worm"—it is really a moth larva, or caterpillar, which he asks me to name in GLEANINGS. He says they are particularly interested in the "worm." The beetle is black, over an inch long; and as it is new to my collection I am very much pleased to get it. It is one of the elaters, or spring beetles, of which I have written several times of late. The grub, or larva, probably lives in rotten wood on which it feeds. I regret to say that the larva was, owing to delay in the mails, so dried up that identification was impossible. I can only say that it was probably a moth larva—I think one of the *Noctuidæ*, or night-flyers. I hope Mr. Kelley will send more.

Mr. W. P. Root writes, "Please name the beautiful moth which I send you." He says, very truly, that it has a "sugar-tooth," and looks like a humming-bird. This is one of our diurnal sphinx moths, and is known to science as *Hemaris diffinis.* All of the *Sphingidæ* are called, very properly, humming-bird moths. They all have large bodies, strong narrow wings, and very long tongues. Thus it is that they can—humming-bird like—poise themselves some distance from a flower and sip the nectar by use of this long tongue. Most sphinx moths are night flyers or twilight flyers, and, like the common tomato-sphinx, are usually gray in color. A few, like the one sent, fly in the hottest sunshine, and are very beautiful. This one is brown and buff, and, with its transparent wings, is very handsome. Like all moths, and butterflies as well, it is robed with minute, delicate, and very beautiful scales, which, from their delicate and varied colors, give the beauty which is so much admired. In this specimen the scales were mostly rubbed off, and so, as friend Root says, "it has lost most of its brilliant gloss." In making our collections we are careful to preserve all this beauty. I have had a class of forty earnest hard-working students in entomology this summer. All have made fine collections, and every one had several species of these fine diurnal *Sphingidæ.* The larva of this one feeds on the honeysuckle shrub and snowberry. It is green, varied with pink, brown, and yellow. To any one rightly brought up it would be called beautiful at once. It has the caudal horn, so common in this family of moth larvæ, and which is familiar to nearly all in the "tomato worm"—should be tomato larva, or caterpillar. How often it is stated that these fine larvæ are dangerously poisonous, and that one thrust with the horn is quickly fatal. Of course, this is all the veriest nonsense. My children have no more fear of these beautiful larvæ than they would have of a little bird. I am very glad that it is so. I hope soon to give illustrated articles in GLEANINGS, showing how to collect and preserve these gems of nature, so all its readers may learn to study them, and thus add to life's enjoyment.

You ask about figures of beetles, page 674. The line beside an insect figure gives the true length when the drawing is enlarged. As the proportions are preserved, the line enables us to form a correct impression of the insect. In the figure in question, the larva is not shown. There are two species shown in the imago, or mature state, and one—that to the right above—pupa.

You ask if species of bidens—beggar-ticks—are the same as Spanish needles. I think so. I remember some one, very likely it was you, once told me that he called these beggar-ticks Spanish needles.

You ask if the galls are ever a normal growth. No, never, no more than is a tumor on a man. In case of galls, the sting of the insect is the disease which impels the false growth, and disfigures the plants. The insect injures the plants that their own young may have home and food. Some of these galls are very handsome, as witness some of the oak-galls.

What you say of bees and peaches is, I feel sure, the truth in reference to bees and all fruit. Bees do not injure or molest perfectly sound fruit.

I was interested in what Mr. Ritter said about moths. I think with him, that it is modern methods rather than the Italian bee that has banished the moth. The bee moth is the only individual, so far as I know, that may justly hold a grudge against our good friend Langstroth.

The picture and biography are *very kind* to me. It is very pleasant and helpful to hear such good things thought and said of us. It makes us anxious to be more worthy of them.

Agricultural College, Mich. A. J. COOK.

SOME INTERESTING FACTS AND OBSERVATIONS CONCERNING DRONES.

DO THEY SOMETIMES CONGREGATE IN SWARMS IN ANY PARTICULAR LOCALITY NEAR THE APIARY?

LET me give some facts that have come under my own observation regarding drones. About the middle of May, 1887, while walking south down the creek one day, looking at the prospect for white clover, I heard what seemed to be a large swarm of bees to the east of me. There was no honey being gathered at the time; and its being so early in the season, I was sure it was not a swarm. My curiosity led me to the spot whence the sound came, and there in countless numbers above my head were drones darting hither and thither after each other, and after every thing else that chanced along. The area covered by them was about the same as a large swarm of bees; but the intensity of the noise they made was equal to that of three swarms of bees. Only the lower drones could be seen. The bulk of them were high in the air, 100 ft. or so. By going a few rods to any side, the sound would come from the common center, which showed that they were all together.

This particular spot is about 80 rods south from the apiary, in the center of 20 acres of timber that had been cut off and is growing up in second growth. Where they congregate, the ground is more open than the rest. Between that and the apiary, or anywhere else in the timber, no sound of bees could be heard. And now comes the important part. Day after day, when drones were flying, I would go to that spot, and there they would be, as many as ever. I have seen them dart at the devil's darning-needles, and have often amused myself by throwing up small chips or pieces of bark, to see three or four follow them nearly to the ground. There were 165 colonies in the apiary then, before I divided it. This year there are over 100 colonies, and the drones still fly in the same place. I was throwing at them just the other day. I believe nearly all the drones on the wing congregate there. My observations have extended over two seasons, and any one can see that I have made no hasty conclusions. If there should happen to be a doubting Thomas among those who read this, I should like the privilege of dispelling that doubt. And now come the questions: Do drones all congregate at a particular spot for the purpose of mating with the young queens? Why did they select that particular spot two years in succession? Last year there were a good many other bees in the neighborhood; this year very few.

ROLAND SHERBURN.

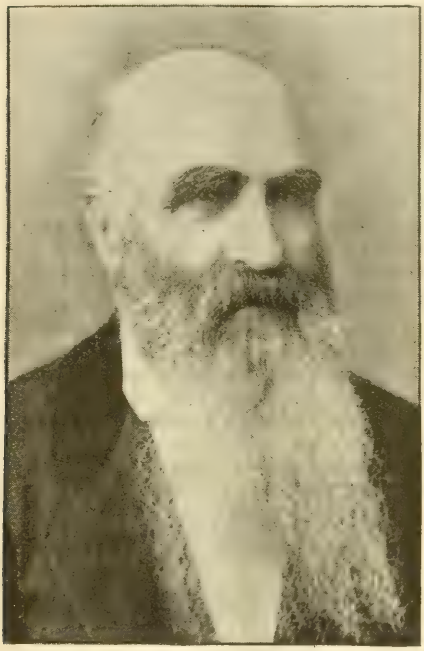
Lone Tree, Ia., Sept. 2, 1888.

Friend S., you have given us a very valuable contribution in this matter of drones congregating in large numbers in certain localities. You may remember that the fact has been for years given in the A B C book; but I was not before aware, however, that they gathered at some spot every day or every year. It might be interesting for beekeepers to visit the spot, to make observations. My opinion is, that the location is favorable on account of the freedom from wind, plenty of sunshine, and may be some other reasons. Virgin queens would probably be at once attracted by the loud roaring, and become speedily fertilized, with very little chance of meeting drones from the same hive the queen came from. Your experiment of making them chase chips indicates pretty clearly the purpose for which they congregate. Very likely all the drones for miles around will be found in this gathering, and, as a matter of course, the more bees are kept in a locality, the larger will be this congregation. I think it quite probable that such a spot is to be found every day when drones fly, near any large apiary or apiaries.

CHAS. DADANT AND SON

AS HONEY-PRODUCERS AND WORKERS OF COMB-FOUNDATION; A BIOGRAPHICAL SKETCH BY DR. MILLER.

HERE are the pictures of two men, known the world over as the largest manufacturers of comb foundation. When I have said that much about them, all but the latest beginners will know that I refer to Chas. Dadant & Son, of Hamilton, Hancock Co., Ill. The production of this sort of pictures is to me simply a marvel. In comparing the pictures with the photographs, the minutest detail seems to be exactly reproduced, so that, to all intents and purposes, the readers of GLEANINGS have the photographs in a place where they are not likely to be lost. There is a lack of the frank, good-natured expression usually seen on the face of the younger man, but the picture has precisely the same expression as the photograph. In the case of the elder, there is, it seems to me, a nobility and intelligence of expression in the photograph that is not entirely brought out in the picture. The only wonder, however, is that there is so little difference.



CHARLES DADANT.

The father, Charles Dadant, was born May 22, 1817, in a village of the old province of Champagne (now departement of Haute Marne), France; while the son, Camille P., was born in Langres, France, April 6, 1851. Very early in life the father showed a strong liking for bees, which developed in a practical form as soon as circumstances favored. He first engaged in the battle of life as traveling agent for a wholesale dry-goods firm, and afterward became a wholesale dry-goods merchant himself; and after leaving this business he associated himself with his father-in-law in the management of a tannery. Grapes were raised in large quantities in the region of his birthplace, and, being thus familiar with their culture from childhood, he determined to try grape-growing in America, and, with that intention, came to the United States in 1863. Not knowing a word of the English language, he commenced its study by the help of a dictionary, and with such success that, within four years, he was able to write articles for the press. While this mode of study gave him fine command of the language for writing, it left him somewhat at fault in the matter of pronunciation; and many who have read his clearly expressed and forcible articles might be surprised at the difficulty they would have in understanding them if read aloud by the man who wrote them.

In 1864 he obtained two colonies of bees from a friend, and tried the movable-frame hives, *side by side* with the old European "eke" horizontally divided hives. The latter were soon cast aside, and in 1868 he made an effort to get the apiarists of France to try the Langstroth system. For this he was rebuked by Mr. Hamet, the editor of the French bee-journal entitled *L'Apiculteur*, who, instead of leading in the van of progress as he might have done, has never ceased his efforts to block the wheels, leaving magazines started later to do the work he might so easily have done.

About this time Mr. D. tried to import bees from Italy. In 1873 he made a trip in person to Italy, but the enterprise was not entirely successful. In 1874, however, he succeeded in importing 250 queens from the apiaries of Giuseppe Fiorini, of Monselice. These importations were kept up for years.

In 1871 his bees had increased so much that his first out-apiary was established, and the number of colonies steadily increased, until 1876 there were five apiaries of from 60 to 120 colonies each, and about the same number have continued since that time. Previous to this, however, in 1874, the son, C. P., who might be said literally to have been raised among the bees, was taken into partnership, and for the last 14 years there has existed the well-known firm, Chas. Dadant & Son.

In 1878 they began the manufacture of comb foundation in a modest way, making that year 500 lbs., and rapidly increasing, until in 1884 they made thirty tons lacking about a thousand pounds, or, to be more exact, 58,928 lbs. Their total product for the first ten years was 280,366 lbs. A late number of GLEANINGS contains some account of their factory, by friend Calvert, which I need not here repeat.

The immense market they find in this and other countries is accounted for by the extreme care they take in having every inch of foundation that leaves their hands, of the highest grade. One time I wrote them my preference for a certain kind of foundation, and they replied that they had never been able to make that kind to suit themselves; and although I am confident they could have made it as good or better than any one else, rather than risk their reputation for making perfect work they wouldn't make it at all, and I had to go elsewhere.

The Dadants have established a very enviable trade in extracted honey, of which they make a specialty. From their own bees in 1884 they extracted 36,000 lbs. They believe in giving the queen full swing at all times in ten frames, and, as in foundation, they set a high mark for the quality of their honey. Think of leaving all the honey on the hives till the close of the season, and then having every cell to uncap! And yet that is exactly what they do. No wonder they can hold their trade.

Mr. C. Dadant is an honorary member of perhaps a dozen European bee-keepers' associations, among which may be mentioned the Italian and Swiss associations. He writes more for European papers than for American, and has been one of the main expounders of American methods in Europe. He is one of the principal contributors of the *Revue Internationale d'Apiculture*, in which publication his portrait was given a few years ago. The Langstroth-Quinby-Dadant hive is used largely in the Old World, under the name of the Dadant hive, simply because he introduced it there.

CAMILLE P. DADANT.

He published a "Petit Cours d'Apiculture Pratique" (Short Course in Practical Apiculture) in France in 1874. This is completely exhausted, and he now has in preparation a translation of the revised work of Langstroth for French publication, simultaneously with the American edition. The latter is now in the hands of the printers, and is looked for with much interest, the leading Canadian society of bee-keepers having purchased in advance a copy for each of its members.

Besides the son, Camille P., Mr. Dadant has a daughter, Mrs. Emil Baxter, of Nauvoo, Ill. C. P. was married in 1875, and has six children.

Marengo, Ill. C. C. MILLER.

Friend M., the facts you give are very interesting indeed; and my experience with the Dadants agrees with your statements exactly. Some years ago, when they first commenced to import queens from Italy, a good deal of fault was found because these specially imported queen-mothers were not large and yellow, like our American-bred queens. One man particularly was so uncharitable as to declare that they sent him nothing but poor hybrids, or, worse still, bees that were almost entirely black, when he had paid for a queen direct from Italy. In vain did our old friend Dadant insist that the queen was just what he sold her for. When the matter was submitted to me, however, I surprised both parties by suggesting that, if anybody wanted to swindle people by substituting home-bred queens, he would pick out the handsomest and lightest-colored queens, and not send out those that are almost black. I believe there was no further trouble after that; for after our hasty friend saw the workers hatch out, he was abundantly satisfied. You can hardly blame foreigners for being somewhat suspicious of the Yankees; but, as a general thing, when they are satisfied that a Yankee is *honest* and *straight*, they will stand by these tried friends in a way that we Yankees sometimes fail to do.

BUTTON-BALL.

THE ADVANTAGE OF HAVING MANY IRONS IN THE FIRE; A POINTER FOR SPECIALISTS.

FIG. 155, page 283 of Prof. Cook's Manual, is an excellent representation of the button-ball, or button bush, as mentioned by Prof. Cook, on page 285 of his Manual. On page 673 of GLEANINGS, in speaking of the button-bush, Mrs. Harrison asks, Will some of your readers tell us more about it, and whether it has off years, like basswood?

Well, yes. There are thousands of acres of it in the marshes of this, the Illinois River bottom. I have lived in this place five years, but we got no button-ball honey until last season. It bloomed about three weeks, and gave us (wife, children and I) something over a ton from this source. This season it has bloomed about six weeks; and up to date we have taken off the hives about 2800 lbs., all button-ball honey. There is about a ton on the hives, and the greater part of that is button-ball.

The cause of its failure in previous years was ice breaking it down during the winter; and its continuing so long in bloom this season was caused by the water. When it commenced to bloom it was standing in water up to its "chin." The water commenced going down; and as the water continued to fall, new shoots put forth, and new buds kept coming, so that there was considerable button-ball bloom yet last week.

We obtained nearly three tons of honey last season from 98 colonies in the spring, and went into winter quarters with 114 colonies. We commenced this spring with about 108 colonies; and while we have not a big crop, we have a fair yield up to date, with a good prospect ahead, if the weather proves favorable. Our neighbors got almost nothing last season, and a little less, so far, this season.

How is this for those "specialist" bee-keepers who do not happen to live in a "special" locality? Too many irons in the fire, I know, is not a good thing; but I am not quite sure that it is not better to have some of them burn occasionally, than to have only one, and that one so cold you can not work it. What say you, friend Root?

We have raised and sold $40,00 worth of melons; $10,00 of early peas, and $5,00 of Corey corn, and raised corn enough to keep our 100 chickens, ever since the corn was ripe enough for them to work on. We have 20 bushels of potatoes in the cellar. We had an abundance of radishes, lettuce, onions, beans, and cabbage, in their turn; a flower-garden of four square rods, with some forty or fifty different kinds of flowers, and many of these are represented in fifteen or twenty different shades of color.

We have five children. The oldest, a daughter, will soon be thirteen. My wife tips the scales at about 110 lbs., while my average is about 123. Rather a small couple, is it not? and yet we do not feel that we are worked to death. S. A. SHUCK.

Liverpool, Ills., Sept. 6, 1888.

Friend S., some of our boys a few days ago were lugging home great clumps of button-ball root, in order to cultivate them for the bees. I told them it would be much easier to move their bees to where the button-balls flourished than to move the button-balls to where the bees flourished; and I also added that I felt pretty sure the button-ball was not a very certain honey-plant. I am very glad of the facts you give us. I wanted you to tell us, however, more about the quality of the honey. Is it first class? I agree with you, that it is about as dangerous to "put your eggs all in one basket" as it is to have "too many irons in the fire."

CUCUMBER HONEY.

HONEY FROM BLOSSOMS OF CUCUMBER-VINES OF A LARGE PICKLING ESTABLISHMENT.

I SOWED one acre of Japanese buckwheat, the seed got of you through Mr. Sykes, of this place; and although it has done very fair for such a dry season, the bees have worked very little on it, for the reason they found something that suited them better. A firm has started a pickle factory. They got farmers to agree to plant from one to ten acres of cucumbers, and they have bought about 10,000 bushels of pickles, and the bees have worked constantly on them since they began to blossom. I think Mr. Sykes will have 1000 pounds of comb honey, almost all from that source. The last of July he said that he had not got a pound of comb honey, and that the bees were taking the honey out of the surplus chamber. He has from forty to fifty stands of bees in the Heddon hives. He contracted the brood-chamber after swarming; and as cucumber honey came on he had swarms all through August that he had to put back in their hives after cutting out queen-cells. I have 17 stands from 8 in the spring. To one small swarm, June 29, black bees, I gave a virgin queen, put on eight Simplicity frames of partly drawn combs. Not having sections to put on, I left them without examining until Sept. 1. One frame was full of sealed honey, and in all eight there was not to exceed one frame of brood, nearly all sealed, both honey and brood; all cells had something in them. The honey is very nice, and looks like basswood. So far as I have tasted it I think it is equally good. We have had very dry weather since the first week in August, and cucumbers are failing; but they have done better than goldenrod, as that is so dried that the bees scarcely work on it. All last year they worked on it strong. IRA V. REEVS.

Pinckney, Mich.

OUR EXCHANGE DEPARTMENT OF ADVERTISING.

SOMETHING ABOUT THE DIFFICULTIES AS WELL AS CONVENIENCES OF THE ARRANGEMENT.

FOR some time past I have been a little undecided as to whether this department was, in the end, one that brought more good to our friends than it did evil. Ever since the department commenced, there have been more or less dissatisfied people. For instance, somebody advertises to trade a pair of ducks for bees. A correspondence opens up, and the trade is made. But the duck-man writes to the editor of GLEANINGS that the bee-man swindled him. There were not as many bees as he agreed to give him; they were not Italians, and they were miserably put up, and may be directed wrongly besides, and he thinks we should advertise the bee-man as a swindler. Remembering the virtue that "thinketh no evil," we write a kind letter to the bee-man, and he replies that the one who has been swindled is *himself*. The ducks were not as represented, and were hardly worth the charges, and he says that the duck-man is a mean fellow, untruthful, and dishonest besides. In despair we write a letter enjoining charity to both parties, and exhort them to settle the matter, if possible, in a way that will be satisfactory. Now another case.

A man had more wagons than he needed, but he did not have as many bees as he wanted, so he advertised that he would trade wagons for bees. I knew pretty well when the advertisement came that he would dispose of the wagons, without any trouble. So he did. There were not wagons enough to go round. One of our neighbors was put to considerable inconvenience in consequence, and thought he ought to have damages. I believe the matter was finally fixed up, but it suggested a caution to those having only a limited supply of certain articles to dispose of. Be careful what promise or encouragement you make. Perhaps the only safe way would be to give each applicant the refusal of the article or articles till such a specified date as will give him plenty of time to answer. Then if he does not take up your offer you can notify the next man, and so on. The worst case in the lot is substantially as follows:

A Mr. Ed Hitchcock, of Lockport, N. Y., advertised four small Yorkshire and six Poland-China pigs for exchange. A correspondence was opened up, and Mr. Hitchcock wrote very fair-looking letters. The consequence was, that one of our bee-folks away down in Texas shipped quite a large lot of bees all the way to Lockport, N. Y. Mr. Hitchcock came and looked at them when they arrived, and told the agent he would come and get them as soon as he could secure the money to pay the charges; but the bees were left to die at the express office. Our Texas friend lost her bees, besides having a heavy express bill to pay. Mr. Hitchcock did write a letter, with an apology, to the effect that his pigs got the "black-tooth," or something, and all died. When we tried to hunt him up, the postmaster informed us that Mr. H. hadn't called for his mail for a long time, and nobody knew what had become of him. And now it transpires that another friend, Mr. S. Whann, of Raymilton, Pa., had a similar correspondence, and sent him some bees, which he took from the office, but that was the last that was heard of him. If any of the readers of GLEANINGS can tell us any thing more about Mr. Hitchcock, we shall be very much obliged to them. We have settled with our friend in Texas; and if our good friend Mr. Whann will tell us how much we owe him for once more making a blunder in accepting advertisements, we will try to make good his loss.

I am not sure, dear friends, but we shall have to give notice at the head of our Exchange Department that we can not be responsible for misunderstandings, disagreements, or disappointment resulting from any transaction that may grow out of offers made in this department; and we are going to take more pains than we have been doing to see that none but good men get their names into this department. If our friend Hitchcock meant to do right, but has been unfortunate in other ways than with pigs, we should be glad to give him a hearing and a helping hand. We think, however, he should either answer letters himself or get some other friend to do it for him. If he has become bankrupt, let him come out squarely like a man, and own up. Any thing gives people a better impression than neglecting to reply to those he has wronged.

HONEY FROM GALLS.

WHITE AS BASSWOOD, AND FLAVOR EXCELLENT.

WHEN I wrote of galls a few days since, I did not know that I was treating a subject of special interest to bee-keepers. To-day I received a very interesting letter from Franklin Wilcox, Mauston, Juneau Co., Wis. He sends me a twig of the scarlet oak (*Quercus Coccinea*). On the end of several of the buds are dark-brown seed-like bodies, which, when examined, prove to be galls. Each gall is hollow, and within is the little larval gall. Like all gall larvæ of the cynip family, it is white with a brown head. Now hear what Mr. Wilcox says:

"I take the liberty of sending you some samples of oak buds that are yielding fine clear nectar in considerable quantities. When stored in combs, it is as white as basswood honey. It dries up in the middle of the day, but in the morning it oozes from the end of the buds (really the end of the galls) in such quantities that it hangs in drops as large as can be dropped from a bottle. When the twig is jarred by wind or other cause, the drops fall. It is most abundant on thrifty trees."

This is a very interesting matter. I hope to rear the gall-producing fly, that we may know to what insect we are thus indebted. I can taste the honey or nectar plainly on the twig, and it seems excellent. I do not know why Mr. Wilcox may not have it again, though he thinks he will not. The galls are not going to die this year, surely. I shall try to get more galls and a specimen of the honey for analysis. A. J. COOK.

Agricultural College, Mich.

THE HONEY SEASON IN ILLINOIS.

THE VALUE AND IMPORTANCE OF HEART'S-EASE AS A HONEY-PLANT.

WHEN I read that foot-note in GLEANINGS for Aug. 15th, to the effect that "the season is now entirely over for honey," I felt like sitting right down and giving you a piece of my mind, as well as some information in regard to the honey-yield we were expecting in this part of Illinois. On reflection, though, I decided that it was a mistake which would be corrected soon enough without any aid from me. Besides, I thought that perhaps I had better not announce the coming of the honey before it was here. It had begun to look as though flowers had forgotten how to yield honey. They had deceived me so often that I scarcely dared trust any of their promises until I saw the fulfillment, and looked with a half-doubtful though hopeful eye on the banners of promise raised everywhere by the hosts of heart's-ease.

Rightly were you named, O heart's-ease! You have brought ease and comfort to the heart of many a poor bee-keeper, almost despairing under the burden of successive seasons of disappointment and failure, for the honey is here. Once more the perfume of nectar fills the air of the apiary, and the hum of the heavy-laden bee sounds as sweetest music in the ear of the honey-producer. Let us but have favorable weather, and we shall yet gather a good crop of honey.

From all reports, I should judge that the early yield was better here than in some other places, though it was little enough here. White clover yielded almost nothing, though in some places it was quite abundant. Basswood yielded well for four or five days, but there is so little basswood in my neighborhood now that it did not amount to much. Still, it was the first time I have ever been able to secure any considerable quantity of basswood honey unmixed with that from other sources.

Sweet clover yielded more than any other plant up to the middle of August, but the honey was not of as good quality as usual, as it was mixed with that from various other plants.

All summer I had been expecting a good fall yield from heart's-ease, and in this I was not disappointed. The bees began to work on it Aug. 20th, though it had been in bloom for some time. In four or five days the hives were rapidly filling with honey; and though the weather has been unfavorable since, as it is getting very dry, with some days almost too cool for the bees to work, some strong colonies have stored over 50 lbs. of honey. The honey is of excellent quality—not comparing, of course, with the best white clover, but thick, light-colored, and of good flavor.

This modest and unassuming plant has thus come again to our rescue, and given us a very good share of a honey crop *after every thing else had failed*. If we should have a good rain, followed by a couple of weeks of hot or even reasonably warm weather, we shall have a large crop. It deserves to be placed at the head of the honey-plants of Illinois. The largest yield I ever saw came from it; and the rapidity with which the bees gather from it is equaled only during the best basswood yields. Yet to most people it is "only a weed." Perhaps it is only a weed, but it is not a bad weed. In fact, I know of no objection to it except that it *is* a weed. It has no burrs to catch the clothing or the hair of animals, no winged seeds to be scattered far and wide by the wind. It does not grow to an objectionable height, and is very easy to kill. Sometimes it grows a little too freely among small grain; but as a rule it does not make much growth until the grain is harvested, when it comes up in the stubble. In the cornfields the corn gets so large before it grows much that it seems to do little or no damage. But it is of no earthly use save to produce honey, and so its beauties and virtues will remain unappreciated, save by the bee-keeper. JAMES A. GREEN.

Dayton, Ill., Sept. 8, 1888.

Friend G., I am very glad indeed to have you give us such a testimonial in favor of heart's-ease. It was Ernest who made the remark that the honey season was entirely over, and he forgot to add, "in many localities." As there seems to be a little misunderstanding in regard to the plant called heart's-ease, will some of the friends please have a photograph made of a good specimen in full bloom. We would have it done here, but I have not seen any this season. A cut of one of the blossoms enlarged would be desirable. The leaves are quite large enough for illustration—perhaps too large; but they can easily be reduced. I presume we are, of course, to move our bees to where the heart's-ease flourishes, rather than to make the plant flourish where the bees are. Nobody would think of raising a crop of it.

TAILOR BEES AND HEART'S-EASE.

ARE SMARTWEED AND HEART'S-EASE IDENTICAL?

WM. D. KRATZ, Hatfield, Pa., sends some of the tailor bees—three females and one male. These are the *Megachile* bees. The females have golden-yellow hairs beneath their bodies, which aid them to collect pollen. The male has a very curiously developed front leg, which is not for collecting pollen, as Mr. K. thinks, but doubtless has some importance in mating. I give a figure of this curious leg in my last edition of "Bee-Keeper's Guide." These bees are called "tailor bees" from their habit of cutting regular pieces, circular or oval, from leaves of trees and plants.

HONEY FROM SMARTWEED.

S. L. Perkins, Farragut, Iowa, sends a plant which he calls heart's-ease. He says his hives were empty two weeks ago, but now are full—some with 48 sections nearly completed, and others three stories high for extracting. He expects, barring frosts, to have these flowers yet three weeks, and he expects 100 lbs. per colony of extracted honey from this plant. He says the weed grows on the alluvial soil of the Missouri River in Iowa, and is a nuisance until fall, when it is very valuable to the bee-keeper. He states that, for ten years, he has secured from each colony $10.00 worth of this honey, each season, except last year. The plant is one of the smartweeds, *Polygonum Pennsylvanicum.* I am surprised to find that smartweed has such a good record as a honey-plant. I have never noticed bees on it much here. We have this same species, but not very common. The smartweeds belong to the buckwheat family, and so we should not be very much surprised that it is a honey-plant. Dock-sorrel, and pie-plant also, are of the same natural order. Has any one else discovered in smartweed a good source of honey? A. J. COOK.

Agricultural College, Mich.

Friend Cook, are you not in error in calling heart's-ease and smartweed one and the same thing? The matter was discussed in our journals considerably several years ago, and we decided that heart's-ease is a great big kind of smartweed. While smartweed is but very little noticed by bees in our locality, they literally swarm on the heart's-ease. It looks very much like smartweed, only the leaves and flowers are on an immense scale, and the seeds from it almost pass for small buckwheat. Large crops of honey have been reported from it, in the Western States. It usually comes up in cornfields, after the last hoeing. It seems to require a good mellow soil. Our friend J. A. Green, in the article just preceding this, tells us more about it, and the honey it produces.

RECEPTACLES FOR EXTRACTED HONEY.

PAPER INSTEAD OF TIN FOR MAKING SQUARE CANS.

MR. ROOT:—Having spent three years in the apiary and supply trade, I have given all matters pertaining to apiculture my undivided attention. Running for extracted honey, I have been very much interested in doing what I could to lessen the expense of raising and shipping our product.

While handling about 50 or 60,000 lbs., both in 58-lb. cans, in wooden jackets, and in barrels, I have admired the easy way in which the 58-lb. cans could be handled, still aware of the fact that they are very expensive—too much so for the specialist who sells his crop in lots of from 1000 to 20,000 lbs. Dreading the awkwardness and leakage of a keg or barrel, but esteeming its low price, I first thought of the new style of package which I describe below. It is to be made of paper, inclosed in a wooden jacket, much like the one used for tin cans. It will have to be made stronger, and must have no cracks large enough to allow any nail or other instrument to pierce a hole through the can. It is to hold 58 lbs., but 50 will probably be the desired amount for such a can to carry.

The following is the method in which the receptacle is to be manufactured: Lay a piece of stout manilla paper (large enough to form the bottom and all four sides) on the bench; on this place a form the size of the inside of can when completed; then wrap or form it to the form, gluing all places where it laps sufficiently to hold it in place, till the cover can be placed and strongly glued on. Now take out the form and place and glue on the cover, which is to be made of a piece of paper, flat, with a rim projecting down over the sides of the can. At each corner a small corner piece of paper pressed into such a shape as to just fit on the corner will be glued on, thus avoiding the leakage which would necessarily take place without them. This cover is to have a 3-inch hole cut in the center, to pour the honey in, after which a 5-inch round piece of paper, which is glued on the outer edge, is to be placed on and rubbed a trifle with one finger, then nail on the cover, and the package is ready to ship.

The cost of the material, the paper and glue, will not exceed 5 cts.

I have made various experiments as to the lasting qualities of the glue, and know it will hold a lifetime. Should the honey candy, to remove it, simply shake the can out, cut off the wrapper, and put the honey in any desired place. The cases are cheap, and one can well afford to destroy them rather than to pay 25 or 30 cts. for tin ones. To draw the honey from the can, take a block 3 x 3 x ⅜ in., with a one-inch hole in the center. Glue it on the paper cover, and cut the corresponding spot on the can out, and use a cork as a stopper.

Now, Mr. Root, please tell me what you think of my invention. If you do not understand all about the can, I will make you a model at my earliest convenience and ship by express; and then if you wish to make a few to try them, all right.

Dowagiac, Mich., July 19, 1888. WILL HEDDON.

On receipt of the article above, curiosity at once prompted us to inquire what relation the writer bore to Mr. James Heddon, of the same place. The former replied, "I am slightly acquainted with and related to James Heddon, he being my father." It will not be necessary, then, to introduce the junior Heddon further to our readers. If it is possible to make receptacles of paper it will greatly lessen the expense of packages for extracted honey in bulk, and put just so much more money into the hands of the producer. A Californian who visited us recently, Mr. C. N. Wilson, of Los Angeles, an extensive honey-producer, said it cost him about a cent a pound to get his honey ready for shipment. We mentioned to him that the junior Heddon was experimenting on paper receptacles. He said that, if the idea could be carried out into practical effect, it would be a great boon to California honey-producers. In a line with our own experiments, we would say that we made several paper packages as directed above, and cemented the joints with rubber cement. But we found that all the paper we have tested so far, would soon become water soaked, and would very shortly leak. We then made another package the same as before, with the exception that we poured hot melted wax into it when completed, after which we gave it a vigorous shaking. This formed a wax film inside—something as is done in waxing barrels. It was then put into a snug-fitting wooden jacket. This package held water for several days. It was subjected to severe treatment, dropping and rolling it about the floor. It stood all this until about the third or fourth day, when all at once, being oversanguine of its strength, as we gave it a tumble on the floor it sprang a leak. Our treatment was doubtless too severe, and we do not therefore propose giving it up yet. The junior Heddon has no doubt had better success. We sincerely hope it will not be a failure, although we must confess that any thing so fragile as paper seems hardly firm enough, even when jacketed on the outside with wood, to hold honey. When our friend Will gets the idea perfected we hope he will send us a can of extracted honey in a paper package. We will promptly report the success or failure of it.

SOMETHING FURTHER FROM FRIEND REESE

CONCERNING THE WIRE CONE-CASE BEE-ESCAPE, ETC.

I HAVE given the wire-cone escapes another thorough and practical test this season, using again the plan described by Mr. H. R. Boardman, on page 200, which plan I had used side by side with my improved plan. I finally discarded it for the one I described on page 15. My experience was that Mr. B.'s plan caused more confusion and excitement with the bees, as they were forced to leave the hive and seek the proper entrance. I also discovered they went out heavily loaded with honey, and returned in due time, making persistent efforts to effect an entrance for more; while with my plan, with the cones leading the bees, and especially the young ones in their natural direction to the brood-chamber, every thing went on so smooth and quiet that you could not discover any thing unusual about the hive. The cases were also much sooner emptied of bees, and the honey could be left on the hive indefinitely, and be securely protected from robbers at all times. I now make this false bottom that fits the empty super, with four one-inch holes close together in the center, with one single cone to cover all, which simplifies the already simple and inexpensive arrangement. This matter is well worth the attention of all practical bee-keepers who are inclined to keep abreast of the times, and accomplish the greatest benefit with the minimum of time and labor. The plan is especially suited to the T super, and the user will discover many good points that I have not mentioned. A single tin cone or small tin funnel, to fit Mr. B.'s "hard-wood form," will work nicely, and is simple and cheap.

COVERING FOR SECTIONS.

Enameled or rubber cloth has proven to be the best cover for sections or frames among the many materials I have used, from the fact that it lies close and smooth, and the bees put very little propolis on it; and what little they do put on can be very readily wiped off with a few soft shavings, excelsior, or old rags, if the sheet is exposed to the hot sun a few minutes when the propolis becomes quite soft, and the cloth is left with a glazed or polished surface.

CORRUGATED IRON FOR HIVE-COVERS.

The subject of water-tight hive-covers had troubled me no little until I hit on the plan of using corrugated iron. It fills the bill nicely, being light, and costing from 12 to 15 cts. each. It may be ordered the exact size wanted, from the factory, at 4 cts. per square foot, painted; and with a limited amount of paint when needed, will outlast the owner. The smaller corrugations, 1¼ in., are most suitable, and the sheets may be tacked on old wood covers that are defective, and take the place of a shade-board.

THE YELLOW VS. THE BLACK RACE.

This has been a good season (not for honey) to test the two races of bees, black and yellow. My two colonies of blacks—being in the same apparent condition as the ten colonies of Italians in the same yard, secured no surplus, while the Italians gathered from 20 to 50 lbs. each. When the honey-flow was over, the Italians remained quietly clustered in and on the hive, while the blacks were nosing around everywhere, trying to rob; and when the jam-making process was going on, the kitchen was swarming with bees, and, to my surprise, every single one of them was black. We all know Italians will rob, but they seem much less inclined to do so.

THE POISON OF THE STING.

The poison of the bee swells me badly, and the only positive panacea I have found is to take the sharp point of my penknife and make a slight cut just where the bee-sting enters, and insert a small quantity of carbonate of soda (common cooking soda) in a few drops of water. I keep a small vial of the solution convenient, and the swelling is averted every time. J. S. Reese.

Winchester, Ky., Sept. 18, 1888.

Friend R., the point you make in regard to letting your bees into the brood nest, is a good one. Dr. Miller's excellent arrangement, shown on page 681 of our last issue, is, I presume, open to the objection you make.—We decided, years ago, that enameled cloth was the best thing we had ever got hold of for covering frames, sections, or any thing of the sort.—My objection to your corrugated iron for hive-covers would be the weight, and I feel quite sure that thin roofing tin costs less per square foot than the iron, and the iron is certainly much heavier to handle. Either one must be kept painted, to avoid rust.—I believe the general testimony is like yours in regard to blacks and Italians, although circumstances may for a time, in rare cases, make a showing the other way.—In regard to the bee-sting remedy, if you are to cut into the flesh so you can get the alkali to reach the poison before it gets into the circulation, there might be some reason in the remedy. But I confess that I should prefer not to have my flesh dug into after that fashion, even if it were desirable to get the alkali down into the spot.

HEADS OF GRAIN

FROM DIFFERENT FIELDS.

BEE-KEEPERS AT THE WEST VIRGINIA EXPOSITION AND STATE FAIR?

EDITOR GLEANINGS:—It would, perhaps, be interesting to some to know that there are a few live bee-keepers to keep the ball rolling, by an exhibit at the above tri-state fair. While we can not detail all, we will make special mention of the exhibit of our friend C. L. Sebright, of Blaine, Ohio.

Upon entering the hall we first notice the smiling faces of Mr. and Mrs. Sebright behind a Novice honey-extractor, entertaining a crowd of curious visitors, and telling them just how the machine would "sling honey." Then the hive of beautiful golden-edged Italians, just too sweet for any thing, and "so tame," kept friend Sebright busy in "using his chin," answering questions, telling all he knew about bees. A pyramid of beeswax, capped by the "stars and stripes," was conspicuous. Several cases of snow-white honey-jars, and cans of extracted honey; piles of hives, and a full line of implements for the apiary, were displayed with taste, and carried the "red ribbon" over all competitors. Brother Sebright is blessed with a whole live woman for a companion, and *last* year carried off the premium for the "best baby," so you see it is no wonder that he is such a progressive bee-keeper. Altogether he is a genial good fellow, whom it is a pleasure to meet. Bee-keepers of Eastern Ohio and West Virginia owe friend Sebright a debt of gratitude for his efforts to improve apiculture. D. H. T.

WILD CUCUMBER, AND THE HONEY IT FURNISHES.

As I have never seen wild cucumber mentioned as a honey-plant in GLEANINGS, I will send you a sample of unripe honey; also a piece of the vine. It is our best fall honey-plant along the Kaw River. We shall get some surplus from it this fall, besides putting our bees in fine shape for winter. If you don't know the name of the plant, send it to Prof. Cook, and reply through GLEANINGS.

J. K. Williamson.

Edwardsville, Kan., Sept. 8, 1888.

Friend W., we are very much obliged for the honey, and the information you give in regard to it. The plant is the star cucumber, or *Sicyos angulatur*. The botany says it is so rapid in its growth that, when a stick is presented to one of the feelers, or tendrils, it will wind around it with a motion that is visible to the naked eye. I think the plant grows spontaneously in our locality. I will explain to our readers, that the honey is pretty fair, having a very perceptible cucumber flavor. As you say it is unripe, it will perhaps improve a good deal on being ripened and sealed up in the hive.

CIRCULATION OF AIR NEEDED FOR EVAPORATING HONEY, FRUIT, OR VEGETABLES.

Your suggestion about the need of a circulation of air in evaporating water from honey, in reply to query 65, p. 576 is important. I have been anxious to devise a plan to have a current of air over the honey under the cover. One of my neighbors has been experimenting on a fruit-dryer. He considers a strong current of air immediately over the fruit the most important principle.

DECOY HIVES IN CALIFORNIA.

Mr. G. F. Merriam, of Escondido, San Diego Co., Cal., says in a letter to me that he left empty hives in an apiary from which he moved the bees, and during this season *39 stray swarms came and entered the hives.* I thought I did well when I had two come to me one season.

San Buenaventura, Cal. R. W. Wilkin.

Why, friend W., this is indeed wonderful, but I presume it is owing much to the great abundance of bees in your beautiful climate, especially to the number of stray swarms going about loose. By the way, friend W., I expect to make you a call in five or six weeks. I mention it here in order that the rest of my bee-friends in California may know that I propose looking in upon them.

PROF. COOK AND THE GOLDEN HIVE.

Dear Mr. Root:—Please say that I never used the Golden bee-hive, and never advised any one else to use it. I did one year get an exceedingly large amount of money from a single colony of bees; but I have always been sorry that I told of it. It was entirely exceptional; and to bruit it abroad is misleading and mischievous, so will my friends please never speak of it?

As to the currants which Mrs. Lawrence reports as turning from red to white, I can only suggest that, barring a chance for mistaken observation, it is one of those sports that nature is ever surprising us with. This is a very decided variation, and such a bush would be regarded as a prize by our horticulturists. A. J. COOK.

Agricultural College, Mich.

AN ITEM WE SHOULD LIKE TO SEE COPIED.

The following first came to our notice in the *American Bee Journal*, and they copied it from the *Western Christian Advocate*. If the papers will take it up and give it such a run as they did the stories about bogus honey, some good may be accomplished. It ought not only to be published in every paper in the land; but if it were tacked up on the guide-posts, wherever two roads meet, it would be a blessing to the coming generation. I would, however, omit the opening paragraph.

What is the chief end of bees?—To get out patent hives.

What is the best patent hive?—The best hive is not patented.

But don't some of these patent hives fool the moth?—No; they fool the men who buy them.

What patent hive is the most useful?—The new one in the barn, with a hen's nest in.

But is there not more money in patent hives than in bees?—Yes; but that time is almost over.

But how are we to know a poor hive?—It has a great many doors, drawers, hinges, cracks, crevices, nooks, and corners which look like conveniences, but which the bees stick fast.

Who are the great bee-savants of this country?—The men who don't use patent hives.

Are bees profitable?—Not to those who buy patent hives.

It was only day before yesterday that a young man was walking over our grounds, looking at the strawberries, etc. He is the son of an old bee-keeper who sometimes writes for GLEANINGS. He has been considered a well-to-do young farmer, but he told me the story of how he lost his farm—lost his horses; in fact, lost every thing that a set of patent-right sharpers could get hold of. It did not go for a patent hive, but it went for a patent-right fence.

T SUPER ADAPTED TO DOOLITTLE'S PLAN.

For years I have watched closely the different methods of manipulating bees and hives, as given by different writers in GLEANINGS, and particularly Mr. G. M. Doolittle. Mr. D.'s accuracy of observation and thorough practicalness of methods I have repeatedly proved by going over the same ground myself. In fact, the first time I ever caught him "off his base" was in GLEANINGS of Aug. 15, page 634. He says: "In this way I accommodate the size of the colony with the needed room, neither giving too much nor too little, as must of necessity occur where the T super and others of a set capacity are used." Allow me to call Mr. D.'s attention to the fact that the T super is only of a *set capacity* when *full.* I have a number of T supers in use, of different sizes, some holding when full from 30 to 40 sections, but they are not always full. I follow the same plan with them that Mr. D. does with his wide frames, using a follower for the purpose. This follower is simply a piece of board the size of the inside of the end of the super, with saw-cuts for the uprights of the T's. During this poor season several of them had only 3, 6, or 9 sections in them. As the majority of bee-keepers do not use chaff hives, and do use T supers or Heddon crates (some of which I use and on the same plan), I can not see that Mr. D.'s method is any improvement on the old plan.

WHY OUR SWARM-CATCHER IS MADE TO HOLD THE SWARM.

On page 654 you say, "The great trouble with most swarming-devices which we have seen is that they will not hold the bees after they have been captured." Now, right here will you tell me what you want to hold them for? I run my apiary, consisting at present of 75 colonies, entirely on the natural-swarming plan. Of course, I have considerable swarming, but I do not allow the bees to cluster on a limb. It is far easier and quicker to make them alight *on* a swarm-catcher than to let them alight on a limb and then get them on or into any swarming-device yet made. Just take an old soft felt hat, put it on the end of a pole, and, just as the bees are starting to alight, work the old hat in carefully; and when they are clustered they are all on the hat, ready to go where you want them.

Kintore, Ont., Aug. 31, 1888. J. W. WHEALY.

Yes, but our bees usually are not so accommodating as to alight where we want them to. The only way we can induce them to cluster upon any particular object is to attract them with a laying queen; but when the latter is in the air we are obliged to secure them wherever she and her attendants may see fit to cluster. After having taken the swarm with the catcher, we don't want them to forsake it, as they are apt to do, for the original point of clustering until we are ready to deposit them at their permanent location, and so our catcher is so constructed as to hold the majority of the bees until all are clustered.—Your point in regard to the T super is a good one.

UNITING.

I have a few swarms that came late, and I can not winter over. I wish to know the best way to double them up. I had a swarm come out the last of August. Not knowing which hive they came out of, I thought I would put them in a large Quinby hive. I started them in, sprinkling both swarms; but the bees that owned the Quinby hive fought the others and killed them all off. C. LAWRENCE.

Ottumwa, Iowa, Sept. 8, 1888.

There is usually no trouble in uniting bees if you smoke them pretty freely when they show a disposition to fight and sting each other. It is a difficult matter sometimes to unite Cyprians and Holy-Land bees. These races will sometimes fight and kill each other in spite of smoke or any thing else. Most Italians can be united without any trouble, at any time. We would recommend you to read the subject of "Uniting," in the A B C of Bee Culture.

OUR QUESTION-BOX,

With Replies from our best Authorities on Bees.

All queries sent in for this department should be briefly stated, and free from any possible ambiguity. The question or questions should be written upon a separate slip of paper, and marked, "For Our Question-Box."

QUESTION NO. 79. *(a) Granting that it is a benefit to the pursuit at large, does it pay the exhibitor financially, either in immediate returns or in ultimate returns from such advertising, to make honey exhibits at his county fair? (b) If it does not, usually, can it be made to do so?*

a. No. b. I doubt it. GEO. GRIMM.

It would not pay *me*. G. M. DOOLITTLE.

I think it does not usually. Occasionally an exhibition will make it pay. H. R. BOARDMAN.

I don't think that it does, nor that it would pay to try to fix it so it would. JAMES HEDDON.

a. It would not pay in our county, and I don't think it could be made to pay. E. FRANCE.

a. Yes. b. A thorough-going bee-man can hardly afford to do without such publicity. R. WILKIN.

a. I think it may pay him immediately if he sells honey at the fair. b. I think so.
C. C. MILLER.

Success depends principally on the disposition and ability of the individual in all such cases.
CHAS. F. MUTH.

a. It pays some men. It does not pay others. b. I don't think it can be made to pay them at all.
E. E. HASTY.

a. Yes, as it is one of the best advertising mediums. Place your merchandise conspicuously, and in a neat and attractive way. PAUL L. VIALLON.

We see nothing in it unless the premiums are sufficient to pay expenses of exhibition. We have exhibited at three State fairs formerly, and found no profit outside of premiums. DADANT & SON.

The right kind of a man could undoubtedly make such an exhibit pay under most circumstances. We ought to push and advertise our business as much as other kinds of business are pushed and advertised. Really it needs such help more than most of them do. JAMES A. GREEN.

a. I have had no experience in exhibiting at county fairs; but the sales of honey, and advertising alone, have never paid me. I rely largely on the premiums, the genial acquaintances I make, and the "fun of the thing" for the profits. b. Some do make it pay. DR. A. B. MASON.

Hardly, as at present managed. It can be made to do so by securing premiums that will make the industry appear respectable in lieu of such as would disgrace any business. The premium-list should be such as would encourage a first-class exhibit. This, in turn, would greatly benefit both the exhibitors and the industry as a whole. A. J. COOK.

I feel very sorry indeed that my foot-note in the last issue, on the matter of fairs, had not been before the friends who answer questions, so they could have read it before giving their opinions as above. My opinion is, that a county fair should not only be looked at as we look at bee-conventions, but, to carry it still further, we should think of them something in the same light as we consider the matter of going to church or prayer-meeting or Sunday-school. One seldom asks the question if it *pays* financially to attend these places; or, if you choose, does it pay to attend the preliminary, or caucus meetings pertaining to the welfare of your town, county, or State? Several of the answers are somewhat in a line with this—Dr. Mason, for instance, and J. A. Green and Prof. Cook.

QUESTION NO. 80. *Have you found that the distribution of circulars, fancy cards, etc., at county fairs, calling attention to the value of honey as food and medicine, have had a beneficial influence on your sales of honey during the following year? If you have not had experience, can you not call to mind any incidents where such means of advertising has benefited indirectly the one who made the distribution of the circulars?*

See answer to number 76. DR. A. B. MASON.

I have had no experience in this. GEO. GRIMM.

Have had no experience along this line.
G. M. DOOLITTLE.

My knowledge on this point is an utter blank.
C. C. MILLER.

I have never tried it. I can to some extent.
MRS. L. HARRISON.

I have never heard of any incidents in that regard. PAUL L. VIALLON.

We have not tried it. It certainly would do some good. DADANT & SON.

I have had no experience nor observation on this point. A. J. COOK.

I do not think I can add any thing of importance to the general fund in this. E. E. HASTY.

My observation and experience would say that such work is not profitable. JAMES HEDDON.

I have not had much experience in this way of advertising. I have better returns from other methods. H. R. BOARDMAN.

It is taken and accepted, that all advertisements benefit, more or less, the advertiser and his business. However, we have paid thousands of dollars for advertisements, and in very rare cases only have we been directly benefited by any one advertisement. CHAS. F. MUTH.

Such advertising ought to pay, according to all rules of advertising, if judiciously carried on. Still, I believe the sale of even a small quantity of honey is worth more as an advertisement than many circulars. My experience in distributing circulars has not been encouraging. JAMES A. GREEN.

We have never tried the distribution of circulars or cards at fairs or any other public gathering. We usually have a large quantity of honey to sell, and depend on selling to manufacturers and honey-dealers away from home. We keep honey in the stores in our own town, and sell at the house at home. Any further than that, we sell at wholesale by the barrel or thousand pounds. E. FRANCE.

This question hinges a good deal on the point in regard to using printed matter for advertising, or some other means. I think it is oftentimes the case that printed matter is wasted, or used to excess, when it is not needed. I should say, that a pleasant face and obliging manner at a county fair would do more good than printed circulars. There are cases, however, where a printed circular is almost a necessity—the matter of tile for underdraining, for instance. A tile machine in operation at a fair is interesting to almost everybody, and almost every farmer is interested in the prices of tile; but it would be folly for the proprietor to expect to give every passer-by the prices so he could remember them, unless he gave them the prices printed on a card, or some such way. It may not be necessary to have a printed circular to give the prices of comb and extracted honey, when it comes to having it put up in glass pails, tin pails, jelly-tumblers, etc. I think, however, a printed card is often a great convenience.

QUESTION NO. 81.—*Should local bee conventions be held on the grounds during fair time? Jones (who has had adverse experience in organizing bee-conventions independent of any other attractions) asserts that they should be held at a fair, because a larger attendance than would otherwise be obtained is secured. Brown disagrees. He argues that there are so many outside attractions, such as shows, poultry, cattle, horse-racing, and general sight-seeing, that the convention is continually interrupted by those coming in and going out. Further, that the members of said convention on the ground will not be present half the time, and consequently the attendance is a very variable quantity. Which of the gentlemen named is the nearer right?*

1. No; 2. Brown. DR. A. B. MASON.

Brown, by all means. PAUL L. VIALLON.

I agree with Bro. Brown. CHAS. F. MUTH.

I never attended a bee convention on the grounds during fair time. GEO. GRIMM.

Decidedly, no. Brown is right; you can't run a bee-convention against a "hoss trot" at a county fair. MRS. L. HARRISON.

Not unless they can be held evenings. Jones is correct for evening meetings, and Brown for day sessions. A. J. COOK.

Yes, if you want to have a pleasant chat; No, if you want to hold a convention and learn something. Brown is right. DADANT & SON.

My experience and observation have been similar to Brown's. I think fairs a poor place to hold bee-conventions. H. R. BOARDMAN.

More real good can be done at a convention where there are no other attractions. The attendance may be smaller, but it is much more apt to be in earnest. JAMES A. GREEN.

Brown; but there may be exceptions, as when half a dozen men can be got together from different parts of the county at a fair, who otherwise would never meet. C. C. MILLER.

Brown is right, in my opinion. If a man is not interested enough in the convention to come to it because it *is* a bee-convention, he is of little use to it, coming when a fair draws him.

G. M. DOOLITTLE.

No. I wouldn't hold bee-conventions in a public place. What the producers want is to meet each other, not persons who may be induced to enter the business. There are more in it now than can make it profitable. Years ago, in this State, we found it objectionable to hold our conventions during fair time in the same city, for the reasons stated by Brown. JAMES HEDDON.

I think Jones will secure the attendance of all the bee-men who would go to any other place. Give those variable-quantity chaps a seat near the door, and let them go when they want to. They are of no use to the convention any way. E. FRANCE.

If a few bee-keepers will meet specially for bee-keepers' interests, I think it of much more service than twice the number met at a fair with mixed interests. Yet if they can be got together at a fair, and not at other times, then have it at the fair.

R. WILKIN.

Both are right. Where the interest is sufficient to make people come, it is better to be free from distractions. Where the managers are determined to have a convention at all hazards, knowing that people would not turn out on purpose for it, they will do better to double up teams with a fair.

E. E. HASTY.

Both Jones and Brown are right, and only local conditions in each case can determine which is the nearer right in that particular instance. Conventions, to be most successful, require the undivided time, attention, and the best thoughts of its members, and it is difficult to obtain these when other attractions are present. Many times, however, a sufficient attendance can not be secured except in connection with fairs, etc., and in such cases it is best to hold conventions, even with all the drawbacks that Brown so truthfully describes, than not to hold any at all. O. O. POPPLETON.

The best conventions, I believe, I ever attended, were in the winter time, when it was so cold that nobody wanted to run outdoors; and some of them were held in small towns, with only a moderate number in attendance. I can not remember one held on a fairground that I thought was very much of a success, for the reasons mentioned; yet they might, perhaps, be a success after all.

BABY FOOTSTEPS.

BY EUGENE SECOR.

Patter, patter, patter—not the rain on the roof
As it falls like a sweet lullaby on the ear,
But sweeter by far (and it hardly needs proof)
Is the pattering music of footsteps dear.
Trot, trot, trot, all the livelong day,
With tireless little feet that never seem to rest.
Always under foot, but never in the way,
Like a wee helpless bird ere it leaves the home nest.
Many are the steps which the happy little tot
Repeats o'er and o'er with never-ceasing zeal;
Many are the tumbles, very soon forgot,
For the mother's healing kiss restores the baby weal.
Upstairs and downstairs a hundred times a day,
Ever on the watch at some forbidden door,
Singing baby-songs in a baby's matchless way,
While the patter of the precious feet is heard upon the floor.
Happy little midget she, so full of Eden joys!
Artless as a lambkin playing on the green!
Pure as are the angels whom the blessed One employs
To watch and guard his children day and e'en.
Happy is the household where a baby runs alone.
Though she often bids defiance to rules in force before,
Her cheerful winning ways for chaos doth atone,
And life is made the brighter by the patter on the floor.

REPORTS ENCOURAGING.

A GOOD REPORT; A PHOTOGRAPHER WHO CLEARED $357 FROM HIS BEES.

I BEGAN in spring with 49 strong colonies; 46 cast swarms; 3 did not swarm. I increased to 68; now have 117. Amount of honey taken to date is 4000 lbs.—3500 extracted, 500 comb. I shall yet have perhaps 1000 lbs. of fall honey from goldenrod and mountain flowers. I send you a sample of my extracted honey. I think it linn and sourwood mixed. My expenses footed up—

Cash for lumber	$15 00
Oil cloth	3 00
Brood-frames	12 00
Total	$30 00
3500 lbs. extracted, sold at 10c	$350 00
250 lbs. of comb, sold at 15c	37 50
Total	$387 50
Expenses deducted	30 00
Amount clear	$357 50

I do not count my labor above. I made my own hives. Three days in each week I gave to my photograph gallery in Winchester; the other 3 I gave to my bees, garden, and other little things around home. I have had no help except my wife. She helped me to extract, but I can't coax her into the apiary, as a single sting makes her very sick. I am well pleased with my summer's work among the bees. I hope next year to make a fine report, as all my bees are in most excellent condition. Foul brood and dysentery are unknown in my section. I am now restocking my apiary with non-swarming queens. I winter on summer stands. All they need is plenty of good honey and a water-tight cover.

R. B. WILLIAMS.

Winchester, Tenn., Sept. 8, 1888.

A WONDERFUL FLOW OF HONEY.

We are having the most wonderful fall flow I ever saw. Every thing is full. B. F. LITTLE.

Brush Creek, Iowa, Sept. 7, 1888.

100 LBS. PER COLONY IN 10 DAYS.

Bees have done well this month; 100 lbs. per colony in 10 days. Isn't that big? WM. MALONE.

Newbern, Ia., Sept. 18, 1888.

ENCOURAGING FROM LANGSTROTH.

Bees in Dayton have done well this season, and are still increasing their stores. Do come to Columbus. I want to see you very much.

Dayton, Ohio, Sept. 14, 1888. L. L. LANGSTROTH.

AN EXTRA GOOD SEASON.

We had an extra good season for clover honey here this year. We have had but one equal to it in the seven years I have been keeping bees. It lasts from the first of June to the tenth of July. My Carniolan bees show that they are honey-gatherers through this time. JOSEPH KLOCK.

Urban, Pa., Sept. 16, 1888.

DOING WELL SINCE THE MIDDLE OF AUGUST.

This season with us for keeping bees was very unfavorable up to the middle of August. There was but little surplus in the combs; but since that time they have done well. I put a swarm in a hive the 21st of August; hive weight, 25 lbs.; swarm of bees with hive, 33 lbs.; weighed again the 6th of this month, it weighed 81 lbs. C. AUTENRIETH.

Creston, Iowa, Sept. 10, 1888.

E. FRANCE & SON.

The bees are making a living from fall flowers. We have tried several kinds of honey-plants, and so far the melissa is ahead. It began to bloom the last of July, and has just finished blooming.

Plattville, Wis., Sept. 8, 1888. E. FRANCE & SON.

140 LBS. PER COLONY; BEES PAID THE BEST.

The honey season has closed with this result to us: The colonies from which we have extracted have averaged 140 lbs. to the colony; those from which we have taken comb honey, 60 lbs. to the colony. We have found the bee-business this year more profitable than any other branch on the farm, for the labor and capital invested. Since my report Aug. 4, our bees have worked a good deal, both for pollen and honey, on the Rocky Mountain bee-plant. With us, August was the best month during the season for collecting honey. Considerable has been gathered in September. MRS. J. W. BACON.

Longmont, Col., Sept. 18, 1888.

REPORTS DISCOURAGING.

THE WORST SEASON KNOWN.

REPORTS discouraging resound all along the line. The season opened up in quite a flattering way on apple-bloom, etc., and all of us bee-tamers wore a pleasant smile when we thought of the fine crop of honey that would be stored in our garner at the close of the season. Well, the season for honey came and passed as it always has and probably will; but what doth our garner bespeak? Well, its contents are easily itemized, for it contains naught but a few crates of hard-looking, dark bug-juice honey. At any rate, the sight would not make the honey-tooth water nor the pocket-book feel plump. Not one pound of light honey has been obtained by our bees this season. Basswood, though promising, and an exceedingly large flow, left us with a semi-melancholy look of one eye into our pocket-book, and the other into the dismal depths of the sugar-barrel. In all, this has been about the worst season it has been our lot to experience, so far as surplus is concerned. Our bees did swarm for a while at a lively rate; but the most of them were put back. Now, are we bee-charmers the only ones doing business who have these drawbacks? I answer, no; and do any of us know what another season may bring forth?

Dennison, Tusc. Co., O. CHAS. L. HILL.

LITTLE HONEY, AND OF POOR QUALITY.

Bees have made but little honey in this part of the country, and that of poor quality. The highest I have taken is 32 lbs. from one colony, down to nothing. I have taken about 250 lbs. of comb honey and 75 lbs. of extracted honey from 30 colonies; 19, spring count. Some of it is the darkest honey I ever saw.

Avondale, O., Sept. 10, 1888. W. T. SINDEN.

ABOUT HALF A CROP.

We have had a very poor honey season in this locality—only about half a crop of honey, caused by the long drouth during the honey season, which lasted until after basswood bloom; but we have had plenty of rain the last three weeks, and vegetation has become nice and green. We shall have about half a crop of honey from our bees.

W. G. RUSSELL.

Millbrook, Ont., Can., Aug. 22, 1888.

MYSELF AND MY NEIGHBORS.

In that day, saith the Lord of hosts, shall ye call every man his neighbor under the vine and under the fig-tree.--ZECH. 3: 10.

THERE are few if any who would like to live without neighbors. Circumstances sometimes make it desirable to live in a place where there are no neighbors nearer than a mile or two; but I believe that every man, woman, and child soon decides that such a place is not pleasant. I suppose that almost every one of us would prefer to have neighbors whom we would ordinarily call pretty mean, rather than to have no neighbors at all. I know we sometimes think, when vexed and sorely tried, that we would be content if there were no neighbors at all, within, say, a mile; but when we come to our sober senses, I think we would reverse our decision. When a child, I remember that we used to have some neighbors who were pretty overbearing, and hard to get along with; and when we came home and told mother how they had acted, she mildly recommended that we play at home, and not have any thing to do with the neighbors, at least for the present. It would not be very long, however, before the children of both families would be edging over toward the fence. Sometimes one of the younger ones, not so much used to the ways of the world, would venture, "Say! are you mad any longer?" and after this sally we would all get pleasant, and pretty soon would be over on their side of the fence, and they would be on our side. And so it went on until we grew up. Few things, in fact, add more to the enjoyment of life than being on pleasant terms with our neighbors.

Day before yesterday, while we were up in the swamp, we dug some potatoes that we have been showing around to the neighbors. Now, the potatoes were a surprise and a cause of rejoicing; but had I been away off in the woods alone, where nobody would have seen them but myself—why, the very thought of it makes me feel sad. As it was, I took one in each hand, and started for the nearest house. They were so big they made my arms ache, I tell you, before I got there. I put one under my arm while I opened the door with my free hand. I did not stop to rap. When I got the door opened I discovered they were all at supper. Worst of all, they had company—some city folks from Chicago. I decided, however, that I could not stop for city folks, and so I walked in with my potatoes. The people were all so greatly astonished that it made us acquainted (even with the city guests) in no time. Then I took my potatoes over to the factory, and I felt glad I had neighbors there too. May be you would like to know about those potatoes. Do you remember my telling you about starting some potatoes in the greenhouse, and covering them over on one Sunday night to keep the frost from killing them? Well, along in June I began to watch anxiously for the new potatoes; but they did not show any signs of ripening at all. They just grew bigger and bigger, and *greener and greener.* It was the same in July and in August; yes, even during this latter part of September some of them have not stopped growing even yet. Two or three hills, however, showed the vines nearly dead, and it was with some excitement that I began to investigate under the black loamy muck. The ground where they grew had been heavily manured for celery, and this, perhaps, accounts for their immense size. They were hitched together in a scraggly kind of fashion; but the potatoes, prongs and all—and these prongs, mind you, were good sound potatoes—weighed fully 3½ pounds each, and these 3½-pound potatoes were not all there were in the hill, either. There were enough for a good peck, taking all together. I bought the seed for the Early Ohio, and planted it for the Early Ohio; yes, and I sold some to some of the bee-friends for Early Ohio too. But they proved to be a great big long white excellent potato, nothing like the Early Ohio. I am afraid I shall not achieve a very great amount of success as a seedsman if I continue to make so many blunders as I have been telling of lately in these pages.

Well, it is pleasant to have neighbors to rejoice with you when you have great big potatoes, and lots of them; and it is pleasant to be on such familiar terms that you can go right into the house, without the ceremony of rapping; but, my friends, it is a terrible state of affairs when Satan manages to get a finger into a neighborhood, so that the neighbors are *not* on pleasant terms. I know it is hard to put up with every thing, and present a smiling face when you are greatly annoyed, vexed, and perhaps sometimes grievously wronged. Let me make an extract from a letter I received just when I was thinking about this matter of writing Our Neighbors for Oct. 1. We omit names and residence, because we do not want to make matters any worse by giving publicity.

COMPELLED TO QUIT.

Mr. Root:—I have no further use for bee-matter except GLEANINGS, because of the behavior of an opponent. The person in question is a man who pretends to be a great lover of the gospel, yet after prayer he has been known to use words not suitable for youths to hear. He keeps several colonies of black bees (sometimes 40 colonies) which, you know, are an injury to a queen-rearer. During the spring of 1887 I visited this person (whose apiary is less than a mile from me), and agreed verbally to Italianize his black bees, free, providing he would accept the queens. He said he would, so last spring I furnished myself with a queen-rearing apparatus, etc., which cost me nearly fifty dollars. Well, I supposed I was in a first-class condition to raise queens to sell. I contracted with several parties throughout Pennsylvania to furnish them with queens at reasonable prices.

During the latter part of May, 1888, I came to the person in question, with an Italian queen, showed her to him, and offered to introduce her as per contract, when he said, "No, I will not have my bees touched! I will continue rearing blacks." He admitted that the Italian bees were the best; that they would work on red clover with success, which blacks do not. I replied, "I made you this offer last year (which you verbally agreed to accept), for the purpose of establishing a queen-rearing apiary, which would prove available both to you and me." He again refused to do as he agreed.

My next offer was to present him some movable-frame hives (some of his being box hives), which he refused to accept. I also offered to transfer them free.

My next and last offer was to furnish him (without charge) $15.00 worth of Alley's drone and queen traps, to catch his drones. He refused to accept the latter, in a very harsh and unkind tone. Do you, Mr. Root, think a man can be a true lover of the gospel, and at the same time be guilty of such an act—to cause a young man to be compelled to quit a profitable business, and lose a good trade, by not living up to his agreement?

I made several attempts to rear queens, but with no success—every one of my queens proving impurely mated. I also made contracts with the rest of my neighbors, agreeing to furnish them with Italian queens. They all agreed to accept them, except the person in question. In regard to GLEANINGS, I must say I can not do without it. Send it on. Though I am compelled to quit the business, I hope I may have the pleasure of helping to promote the interest of such a religious and apicultural work.

For convenience we will name the writer of the above letter A, and his neighbor Z. Friend A, I sincerely hope you will retain the good opinion of GLEANINGS which you express in your concluding sentence, even though you may not agree with the advice your old friend A. I. Root shall think proper to give you. I have had some trials almost exactly like your own. In my case, however, a neighbor purchased some colonies of black bees that were full of drones, and moved them within a few rods of our queen-rearing apiary. I fear I did not do just as a Christian ought to do, clear through the whole matter, for I am human, yes, *exceedingly* human. When we get into such a predicament, let us remember the Scripture text which says that "he that ruleth his own spirit is greater than he that taketh a city." I think my judgment may be a little better now, in the case you present, for I am not prejudiced either for or against either of the parties. I hope and pray, dear friend A, that you may have faith enough in me to believe me when I assure you that your friend is to be pitied more, perhaps, than blamed. Satan has got between you, and you are both, perhaps, more or less biased. When neighbors get into troubles like these, they lose their ordinary good judgment and good sense. Yes, we all of us lose our good judgment and good sense when we get into a quarrel. The first thing for you to do, dear friend, is to say, "Get thee behind me, Satan." Do not censure your neighbor too severely. It is the most natural thing in the world to complain of him, and to make out a pretty hard case against him. Resist with all your might this tendency. Keep saying, over and over again, "Love ye your enemies; do good to those that hate you, and pray for them that despitefully use you." *You* say he *pretends* to be a great lover of the gospel. Now, dear friend, do not be in a hurry to use the word "pretend." I think he *is* a lover of the gospel. He may be unwise regarding the language he uses after attending prayers; but do we not all at times find ourselves guilty of the same to a greater or lesser extent? From the fact that he once promised you to have the bees Italianized, I think he is a good sort of man, and means to do right. Something has prejudiced him and provoked him, I fell quite sure, from your letter. A great many such cases have been brought to my notice; and a great many times I have assured the one who complained, that his neighbor would do what was right if approached in the right way. I have sometimes seen people act very stubbornly; and yet when I came to them in a friendly, neighborly way, with a remark something like this, "Friend M, you surely mean to do what is fair and right in regard to this matter between you and your neighbor, do you not?" what kind of an answer do you suppose I got? Why, I have hardly ever found a case where the reply has not been something like this:

"Why, Mr. Root, to be *sure* I will do what is right;" and the result has shown that, when the other party was willing to abide by my decision, he kept his promise. I think, my friend, we shall find it so in this case. As you state it, it seems pretty hard when he refused your offer of some movable-frame hives; but please remember, friend A., that few of us like to receive property without any equivalent. I do not believe it is best to offer Italian queens to somebody who has black bees, without pay. Suppose you offer them at a very low price, say what it actually costs to raise them; the same with the drone-traps which you offer him. Such an offer as yours would be apt to make many people stubborn and contrary. I do think your neighbor *can be* a lover of the gospel, even after what has happened. But I am afraid that Satan has got between you, and warped the better judgment of both of you. It is surely your neighbor's privilege to keep black bees, and have nothing to do with the Italians, if he chooses to do so, and I am sure you exaggerate the degree of wrong you have sustained, in several ways. First, it is not entirely out of the question for you to raise pure queens, even if your neighbor persists in keeping blacks. It has been tried a good many times. Again, it is by no means certain that you could do a profitable business, providing all around you were Italians. A great many queen-rearers have not made it pay, even after they had Italianized the whole neighborhood. It requires a good many years of practice and experience to compete with the low prices at which queens are now offered. Finally, from the fact you mention, that your neighbor is a Christian man, I take it for granted that *you* are a Christian man also. If not, dear friend A, is it not your first and most important duty to take up your cross and follow Him who said, "*Blessed* are ye when men shall persecute you and revile you," etc.? With a real Christ-like spirit in your heart, I am sure you can go to your neighbor and find him friendly and fair. Suppose you approach him in this way:

"Neighbor Z, since our conversation the other day, I am forced to think that there is some reason I do not know of for the course you have decided on in regard to keeping black bees. Now, may be I was wrong; if so, please forgive me. I know it is your privilege to keep black bees if you choose, and I will try to feel pleasant and friendly toward you, even should you persist in doing this. If you do not object, however, I shall be glad to have you tell me the exact reasons why you think best to decline assisting me in this matter that I feel so anxious about; namely, in repressing black drones as much as possible in my neighborhood. We both love the common Master, who has said, 'Thou shalt love thy neighbor as thyself;' and while this is true, it is strange if we can not arrange a little matter like this pleasantly, and with neighborly feelings." Now as I bid you adieu, my two friends, may God's blessing and great love rest over you; and, in the language used by Jude, "the servant of Jesus Christ," let me say, "Unto him that is able to keep you from falling, and to present you faultless before the presence of his glory with exceeding joy, to the only wise God our Savior, be glory and majesty, dominion and power, both now and ever. Amen."

RECENT DEVELOPMENTS
IN BEE CULTURE.

CONDUCTED BY ERNEST R. ROOT.

THAT EDITORIAL "WE."

YOU see by the heading above, that I have started a new department, or, rather, reinstated an old one, to be inserted occasionally when material calls for it. There are several reasons why I do so. In the first place, I dislike to hide personality under the editorial "we." When I read an article I like to know who wrote it, and who is responsible for the statements. Several of the recent innovations I have written up in regular style, using the plural pronoun instead of the singular; but I always felt as if I were hedged in by that little word of two letters. While I shall not now discard entirely the editorial "we" in reply to general correspondence, in this department (and also in the department of Our Own Apiary) I want to arrogate to myself the privilege of "using *I* as often as I please," as Dr. Miller says, for I believe that less of "We, Us & Co.," and more *personality*, is what we want in articles written in regard to our rapidly growing pursuit. Another reason why I felt constrained to start this department is because the recent improvements are not always appropriate to be considered under the head of "Our Own Apiary," or under general heads elsewhere. Still a third reason is, that GLEANINGS prides herself because of the personality of her writers; and a fourth reason is, that the times call for it. So there!

I may not always pick out that which is recent and that which is new or worthy of further development, but I shall spare no pains in watching both foreign and American bee-journals for material for this department. With this preface I am now going to talk again about something in the line of extractors which eject honey from both sides of the comb, without reversing either the motion or the combs.

THAT NEW EXTRACTOR, AGAIN.

Since my comment on the article on page 683, in regard to a recent German extractor, I have had some little correspondence with Dr. C. C. Miller, who has been thinking of this matter not a little. He is quite sanguine as to the success of the new method of extracting from combs. In a private letter dated Sept. 4, he says:

> *Dear Ernest:*—I want to say a word to encourage you in thoroughly testing the extractor shown on page 683. The principle is all right, I believe.

In another private letter received, the doctor drew several diagrams, and added a great many suggestions, some of which I will incorporate in this article. His letter was submitted to Mr. Warner, and the latter finally made a working drawing embodying Miller's drawings in one. The accompanying is the diagram, and is reduced exactly ten times. You will see that, instead of putting the combs in horizontally, as was mentioned in the article translated from the German bee-journal, page 683, they are to be placed in vertically, the bottom-bar of each frame parallel with the spindle. The diagram shows a cross-sectional view, looking down into the extractor. B B shows the individual end-bars of the frames. The radiating lines parallel to the end-bars on either side represent comb-pockets. The inside circle H, H, represents the rim which supports and holds the comb-pockets; the outside circle, K, K, the can itself. The bottom-bar of each frame is just an

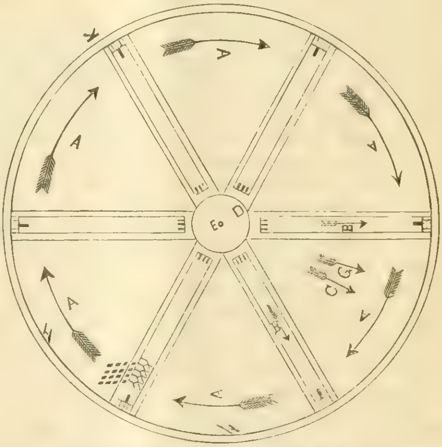


DIAGRAM OF AN EXTRACTOR WHICH DOES NOT REQUIRE THE REVERSAL OF COMBS OR MOTION.

inch and a half from the center of the spindle. It may be desirable to have this end-bar further removed from the center of motion; but experiment alone can determine this. Now, every thing in the extractor is supposed to revolve. except the outside circle, i. e., the can. Let us suppose that the reel is revolved in the direction of the arrows A, A, A, etc. The centrifugal force is immediately exerted toward the top-bar of each of the frames. This force causes the honey to press toward the sides of the cells which are nearest the surrounding can. This will cause the honey to be forced to the mouth of each cell, to be spilled outward, and to be sent off at an angle, or to jump from cell to cell until it passes off beyond the top-bar. There are two forces operating with and against the centrifugal force. The first is the force of inertia, and the other is that of gravity. On one side of the comb, inertia operates in conjunction with the centrifugal force; i. e., the cells flee away from the honey, leaving the latter to spill off, say in the direction of the arrows G and C. On the reverse side of the comb the cells traveling faster will have a tendency to retain the honey. But in stopping and starting, this force is equalized, and hence made practically inoperative, as affecting the result of the centrifugal force.

To test the matter practically, the foreman made a diagram as shown above, and the tinners very soon had an extractor constructed on this principle. I could hardly wait until the combs were brought in from the apiary. In order to give the extractor a hard test, I specially requested our apiarist to select combs with thick and well-ripened honey, and he was most successful in this part of the programme. Although the extractor is made to hold six combs, we (the foreman, the tinners, and myself) could not wait to have six uncapped and put in the can. As the honey was so thick, the uncapping was a slow operation. No sooner had the two combs been placed in the extractor than the machine was set to whirling rapidly. Did the honey fly out? Oh, yes! It spotted the sides of the can, but, contrary to my *highest* expectations, it did not throw the honey out *quite* as clean as I desired to see it, although both sides of the comb were pretty well emptied simultaneously, without any reversing of motion. On removing the combs I discovered that practice very nearly confirmed theory; the direction which the honey took showed either that the centrifugal force was so much greater than that of inertia that the latter had but very little effect on the result, or, what is more probable, that it was entirely compensated by the retarding of motion. In fact, the honey was emptied about as well from one side as from the other, irrespective of the line of motion. After revolving the combs to as high a speed as I dared to in the hastily constructed reel, I then placed them in an ordinary extractor. The combs were emptied a little cleaner. I say a *little*, for it was only a small trifle. You will please bear in mind, that these combs had been in the surplus apartment of two or three very strong colonies ever since the honey had been gathered, which was in the latter part of June. I feel quite confident that, if the combs of honey had been just allowed to seal over, every drop of the honey would have been thrown out. But there are some, like the Dadants, who allow their honey to become very thick before extracting. Perhaps further experimenting will make it possible to extract this honey also.

ITS ADVANTAGES, IF A SUCCESS.

Now, then, I will try to sum up some of the advantages that might be made in favor of this extractor. First, the most important is, honey can be extracted from both sides simultaneously, without reversal of motion. Second, a greater number of combs, for the same expense on a machine, can be emptied of their contents in less time than by the old plan. Third, an extractor on this principle, to hold 4, 6, 8, or 10 frames, can be made for considerably less money than similar extractors now on the market for extracting the corresponding number of combs. Fourth, as so many combs can be extracted at once, the apiarist can afford more time to let the combs drain of the honey which may cling to the edges of the cells.

Now, please understand that the foregoing advantages are made only on the assumption that the principle shall prove to be a success. In my mind it has not quite done it as yet, although so near it that I feel encouraged to test the matter a little further.

Let us now consider some of the defects that seem to be developed so far. It will require a larger and heavier extractor, consequently it will cost a little more. Secondly, it will demand a higher rate of motion, and, consequently, more power. Third, it may not do the work as clean as the old style.

HOW TO TEST THE MATTER FOR YOURSELVES.

I doubt not that some of our subscribers would like to test the matter a little for themselves, without going to any great expense. You can do it after a fashion in this way: Take a cup of water and set it down on the bottom of the revolving reel in an ordinary extractor. Give the extractor a few turns, and you will see how quickly the water is thrown out. After having done this, perform the same experiment, only using a bottle of water, uncorked, and you will find that the water will shoot out of the neck of the bottle until the latter is half emptied, the reason of which is apparent.

IS THIS IDEA NEW?

I would hardly dare to say that this idea is new, for it seems that, as long ago as 1874, Mr. Cowan used and put into actual practice a similar extractor; but because it broke down the combs, he abandoned it. The principle seems to have slumbered until our German friend, Mr. Buhne-Lauben, brought it forth to the public. Your humble servant, catching on to the idea, had the wood-cut copied by photo-engraving, and the same inserted in GLEANINGS. Dr. Miller, catching on a little further than I had, suggested putting the combs in as shown in the foregoing diagram, so the principle is not necessarily new, but an old one resurrected. It is possible that it may again slumber, and slumber never to be resurrected again; but before it does I should like to satisfy myself whether the idea is practicable or impracticable. Now, there may be some of our readers who, after reading this, may say, "I worked out this same idea years ago and discarded it." If there be such a one or ones among our subscribers, will they please tell us all they know about it? If there is a good thing in our reach, we do not want to throw it away until we know it is good for nothing. It is the province of a bee-journal to develop and test these ideas.

Since the foregoing was written, a private letter came to hand from Dr. Miller. From it I extract the following, as it contains the account of a practical experiment, and confirms the theoretical workings of the new extractor. I hope others will try the doctor's experiment, and report on it. The extract is as follows:

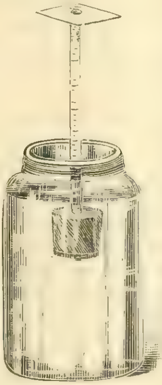
My Dear Ernest:—I put on my overalls this morning, and tied a frame in the extractor with three strings, the bottom-bar tied to the spindle, the frame perpendicular. The morning is cool, the frame has been in the house for days, and was perhaps one-third full of honey, which I suppose was pretty thick, as it was put in the comb by bees that were cleaning up combs that had been extracted. Yes, it's quite thick, for I've just gone and stuck my finger in some that stands on the perpendicular surface of tin where it was thrown about an hour ago. I gave by actual count the number of turns usually made in extracting one side, and tried to give the usual rate of speed. With no little interest I took out the frame to examine. The first thing was a feeling of surprise at the execution done—delight as well. Not only was the part near the top-bar cleaned out as well as in ordinary extracting, but for some distance toward the bottom-bar, and some was extracted to within—on close examination I can distinguish a distinct line where the cells between that and the bottom-bar have the honey left in them undisturbed. This line is just 3 inches from the spindle, or about 3½ from the center of motion. Just so far as a single experiment proves any thing, it makes me think that the point I made in theory is still stronger in practice; that is, that a tumbler or a cell revolving in the new position will be more readily emptied than in the old position in an ordinary extractor; and I think more than ever, that there was some mistake about your needing a higher rate of speed to extract the cells *at the same distance from the spindle.*

AN INGENIOUS METHOD FOR WEIGHING BEE-LOADS, ETC.

SOME INTERESTING RESULTS AS TO THE WEIGHT OF VARIOUS SEEDS, AND THE NUMBER TO THE POUND.

SEVERAL years ago I noticed a description in GLEANINGS of a scale for weighing bee-loads, by E. E. Hasty. I have made one on a different plan that I think is pretty good, so I thought I would write to GLEANINGS about it.

It is a floating scale, and consists of a cork with an upright straw in the top, and a weight at the bottom and a platform at the top of the straw. To make it, get a cork about two inches long and from one-half to one inch in diameter. Fit a flat piece of lead to the bottom of the cork, just large enough to sink it, and fasten it on with a wire nail. Fit a straight, even-sized straw about eight inches long into the top of the cork, using a very small straw for small weights and a larger one for larger weights. Now dip the cork, lead, and the base of the straw in melted beeswax, to prevent water from soaking into any opening. With a rule and pen and ink, mark inch and eighth-inch divisions upon one side of the straw. The inch marks may be made longer than the others, or they may be made with red ink to be more easily distinguished. Having done this, varnish the straw to prevent the ink from washing off. Get a piece of thick paper, about an inch square, for a platform, and stick a wire nail or a pin through the center, to rest in the top of the straw. Set the scale into a two-quart glass fruit-jar, full of water; and if it sinks, pare off enough of the lead so the top of the cork will float about half an inch below the surface of the water. If you get too much pared off the first time, stick a small wire nail into the cork and try again. When you have got the scale to float properly, it is ready for use.



A SCALE FOR WEIGHING BEES, ETC.

Now for the weights. A piece of GLEANINGS cover one inch square weighs one grain, and a piece four by six inches weighs one pennyweight. Lay a grain or a pennyweight on the platform, and see how far it sinks. If a pennyweight sinks six inches, each fourth of an inch would be one grain; and an object that would cause the scale to sink one and one-half inches would weigh six grains, or one-fourth pennyweight. If a grain causes it to sink five inches, each eighth of an inch would be one-fortieth of a grain. An eighth on my smaller scale is equal to one-thirty-seventh of a grain. I have weighed quite a number of things, and will give some of the results. Alsike clover-seed required 320 seeds to weigh one grain. At that rate a bushel would contain 134 millions of seeds; and to sow one acre so that there would be a seed to every square inch would require two and three-fourths pounds. I think the sample I weighed was not as well-filled seed as the average, and would probably reduce the average number per bushel to 100 million. A grain of white clover contains 250 seeds, and timothy contains 225 seeds to the grain. Our Grand Rapids lettuce-seed has just matured, and I find that a grain contains 55 seeds. A pound with careful management ought, then, to make about 385 thousand plants. I have also weighed some melon-seeds. Muskmelon-seeds average three-fifths of a grain, and an ounce would contain 730 seeds. Watermelon-seeds weigh 1$\frac{5}{7}$ grains, or 225 to the ounce.

An advantage this scale has over Mr. Hasty's balance scale is, that this is much more sensitive to a small weight, and the weight is found in less time.

DARWIN M. ANDREWS.

Farina, Ill., Aug. 20, 1888.

Why, friend A., you have not only got a very sensitive scale, but you have succeeded in making a splendid hydrometer at an almost insignificant cost. I am quite sure your experiment would show the difference between rain water and hard well water. It would also test the quantity of vinegar in maple sap, to say nothing of the specific gravity of different kinds of honey. If we could only have a standard scale of density of honey, so that our advertisers could by figures indicate the specific gravity, it would be worth a good deal. It is on the same principle as testing the strength of vinegar, brine, etc., by putting in an egg; but as all eggs are not of one specific gravity, there is very little accuracy by the egg method. The figures you give us in the alsike-clover experiment illustrate how much of the seed is wasted because of our imperfect method in getting it evenly distributed. One plant to every square inch, I am sure, would be altogether too close. I should say that each plant should be at least two inches from its neighbor, in every direction. What is the opinion of our clover-men in regard to this matter?

SMALL GREENHOUSES FOR STARTING VEGETABLE-PLANTS, ETC.

HOW CHEAP CAN ONE BE GOTTEN UP, SO AS TO BE AN AID TO MARKET-GARDENING?

FRIEND ROOT:—Since bee-keeping has been with us a complete failure for two successive seasons, it becomes necessary for bee-keepers to look for something else. Market-gardening, as recommended by you, costs little to start with, brings immediate returns, and can be dropped without much loss at any time. But a gardener without a greenhouse is like a lame horse in the ring—always behind—and therefore never wins a prize. In your talk, "What to Do," etc., you give a brief description of your greenhouse, but you say it cost from $150 to $200. Very few bee-keepers, especially after two bad seasons, are able to invest that much in a greenhouse, and I am one of the number; but in Chapter XLVI., page 207, you come to speak of a greenhouse 12 x 15 feet, which could be built for $5.00. This suited my pocket-book exactly. I could build a shanty against the south end of my shop, put a glass roof on, and have a greenhouse according to how far I extend the shanty. With paper and pencil in hand I began to figure the cost at once; but, lo! here comes the rub. I have, of course, never had reason to doubt the word of A. I. Root, but I am much inclined to think he has made a mistake. I would, of course, have my house double-walled, packed in with sawdust. That will make it frost-proof, and save fuel; but 700 to 800 feet of common lumber at $10.00 per M. would go a good ways. But how about the glass roof? The sash *alone*, if I should have them made to order here in the factory, would cost me nearer $10.00 than $5.00, to say nothing about the glass; so, according to my figures, before I got a greenhouse ready for business, as described above, it will cost $25.00 to $30.00, even if I do all work myself and count nothing. Now, friend, you can do me, and very likely a good many others, a favor by describing how such a small greenhouse, as you speak of in above-named chapter can be built at the lowest possible figures, and where the necessary material can be had. If it can be had of A. I. himself, it may be all the better, for we know then just exactly what we are to get.

JULIUS JOHANNSEN.

Port Clinton, Ohio, Aug. 10, 1888.

Friend J., I think you are a little hasty in deciding that your friend A. I. Root is mistaken. If you will turn to the chapter you mention, you will find that, in the fore part, I describe a house for raising celery, perhaps 12x15 feet, and at the close of the same chapter I mention the little greenhouse I saw that day, that did not cost over $5.00. Now, if you do not wish to invest over five or ten dollars in a greenhouse, I will tell you how to make it. It should by all means be a lean-to, and should be on the south side of some good substantial building. One with a cellar under it is preferred. A wing on the west side, but not so wide as to cut off too much of the sun in the afternoon, would also be an advantage. If you have not got the wing, put up some old boards; pile up some boxes or barrels, or take your spade and throw up an embankment of dirt and sods. It is very bad policy to have the door of a small greenhouse open directly into the open air. A door is also expensive. If you can remove a cellar window, and cut it down so as to be deep enough to walk through, and fit some kind of a door to it yourself, it will give you the best sort of an entrance; and during very severe weather you can open the door and make your little greenhouse a part of the cellar. If there is danger of your cellar freezing by so doing, cover your sash with mats, carpets, or even old boards, while the weather is intense. Make the east and west walls of some cheap old boards which you can pick up; then make them warm by banking coarse stable manure in the corners thus formed by these cheap walls, and the main building. Almost all I have mentioned can be done with little if any cash outlay. You will probably have to take some money to buy the sash.

In Chapter IV. of the book "What to Do," etc., I mention a cheap greenhouse which the owner made of some second-hand 4 x 6 window-sash, and which he bought for one dollar per sash, glass and all; and such second-hand glass can be bought in almost every neighborhood, if you hunt them up. If you can not find second-hand sash, make some rafters similar to those figured on page 176 of the book above mentioned, and put in the glass yourself. Use second-hand glass if you can find it; if you can not, purchase new; and as glass is always worth something after the greenhouse is torn away, it can never in any case be cash entirely lost. You can find an old stove in almost any neighborhood, as suggested in my book. Several such greenhouses have been built right over the usual cellarway. I would not advise this, however, as your greenhouse must be torn down whenever you want to get things out and in through the outside doorway.

SPECIAL NOTICES.

ONION-SETS—PRICE REDUCED.

Any time during this month of October is the time to plant these (see directions, page 695), and we have been enabled to reduce the price as follows: 1 lb., by mail, postpaid, 20 c.; 1 peck, by freight or express, $1.00; 1 bushel, $3.00.

STRAWBERRY-PLANTS.

We have never before had such nice weather for growing strawberry-plants that I know of, and we have been doing quite a lively business in sending them by mail during the whole month of September. With the reduced rates of postage, 500 strong plants can be sent by mail so as to arrive in excellent order for only 50 cts. Beautiful plants of our three favorite varieties, Sharpless, Jersey Queen, and Jessie, at 10 cts. for 10; 75 cts. per 100, or $5.00 per 1000. By mail, add 3 cts. postage on 10, or 15 cts. postage on 100.

"GRAND RAPIDS" LETTUCE.

At present we have some of the finest lettuce for market I ever saw grown anywhere, either under glass or out of doors. It is the Grand Rapids, and, of course, does not form solid heads, but the stalks average ½ lb. each. They are so handsome that a glimpse of even the bed is enough to bring forth exclamations of surprise. I wanted to put a bed in our front lawn, but my wife objects. She admits it would be handsomer than coleus, or almost any thing else, but she thinks everybody would laugh at a lettuce-bed in the front yard. Now is the time to sow the seed to get a crop for the holidays. Price 5 cts. per packet; ¼ oz., 10 cts.; ounce, 35 cts.; ¼ lb., $1.25; 1 lb., $4.50. Postpaid by mail at above prices, except pounds and quarter-pounds. For these, add 3 cts. for ¼ lb., or 9 cts. for a whole pound, for postage.

GLEANINGS IN BEE CULTURE,

Published Semi-Monthly.

A. I. ROOT,
EDITOR AND PUBLISHER,
MEDINA, OHIO.

TERMS: $1.00 PER YEAR, POSTPAID.

For Clubbing Rates, See First Page of Reading Matter.

MEDINA, OCT. 1, 1888.

These are murmurers, complainers, walking after their own lusts.—JUDE 16.

OUR subscribers now number 8415.

LOCATING AN APIARY NEAR CUCUMBER FARMS.

ON page 762 we have finally a report from an apiary in the vicinity of cucumber farms. As I expected, they gave quite a good yield of honey, and the honey is of good quality—looks like basswood. Now, this is a very important matter, and I would advise our readers to look out for localities where cucumbers are raised by the acre. My impression is, that about five colonies of bees could be profitably located, say within one mile of every acre of ground devoted to cucumber-raising. In the above case, 40 or 50 stands of bees filled their brood-chambers, and produced about 1000 lbs. of comb honey from the cucumber bloom. We shall be glad to have friend Reevs tell us about how many acres of cucumbers there were, say within one mile of the 40 or 50 stands of bees.

THE BEE-KEEPERS' GUIDE.

WE have lately received a shipment of 100 copies of the last edition (fifteenth thousand) of the Bee-Keepers' Guide, by Prof. A. J. Cook. Comparing this with the former edition, we observe that it has been very largely re-written, and the new matter has been so nicely woven in that it is impossible to discover traces of patch-marks, so complete and whole is the work. The latest edition contains 461 pages—over 100 pages more than the preceding one, the largest additions being made in the scientific portions. The plates have been entirely recast, and many new engravings have been added. It is printed on better paper, and its typographical appearance is creditable. Whatever may be said of other authors, we feel sure that our Prof. Cook has been very careful to give due credit whenever he has drawn from outside sources. In consequence of the large amount of labor which Prof. Cook has expended on this edition, and the addition of new matter, he thought he could hardly afford to sell it any more at the old price of $1 25 by mail. The price of the new volume is now changed to $1.50. If the old edition was worth $1.25, this certainly is worth $1.50. Copies will be mailed from this office at the price named, or 15 cts. less when sent by freight or express with other goods.

SLANDEROUS REPORTS IN REGARD TO THE ADULTERATION OF HONEY.

OUR good friend H. L. Hubbard, of Walpole, N. H., in trying to call to order the *Mirror and Farmer*, of Manchester, N. H., for their misleading statements, submitted to them our thousand-dollar offer. And now the *Mirror and Farmer* accuses me of offering a premium on deception—that is, I make it a greater object than it has been heretofore, for somebody to counterfeit comb honey. I would remind them and others that I have never offered a thousand dollars for a small piece of manufactured comb honey. I do, however, offer a thousand dollars for a proof of the statement so often made by newspapers and individuals, that comb honey is manufactured by machinery. I think it would look much better and be more profitable for the editors to own up frankly that they have made a big blunder, instead of trying to evade the necessity of an apology. They also suggest that some bee-keeper could feed his bees glucose, and thus secure the thousand dollars. They are mistaken in this in two ways. Such a course would not secure artificial comb honey; neither would it secure even a bogus article that could be sold at the price of the genuine. It has not been done, and can not be done.

NO PROGRAMME FOR THE NEXT NATIONAL BEE-KEEPERS' CONVENTION AT COLUMBUS.

FEELING a little concerned because of the non-appearance of the programme for our next national convention, we wrote to the secretary, W. Z. Hutchinson, and he replies as follows:

> FRIEND ROOT:—Yours inquiring about the programme of the N. A. B. K. S. is here. I fear you will have to get along without a programme, and possibly your secretary too. Three weeks ago I was taken with inflammatory rheumatism, also some fever, a sort of rheumatic fever. Notwithstanding this I wrote, or had Mrs. H. write, to several, and tried to get up a programme. Some have not replied; others begged to be excused. Everybody seemed to want a convention, but few were willing to take hold and help; they were "going to learn instead of to teach others," etc. The apparent apathy of others, and the severe pains I was suffering, discouraged me, and I gave up trying to get up a programme, thinking the folks must get along without one as best they could.
>
> Flint, Mich., Sept. 24, 1888. W. Z. HUTCHINSON.

We are sorry that a regular set programme is not to be carried into effect; but some of the best talks we have at conventions are given off-hand, without thought or preparation. The convention may be relieved of the tedium of listening to some long essay which a set programme might have called for. We feel sure that the convention will be a success anyhow, with such men as Dr. Mason, Dr. Miller, Prof. Cook, and other prominent bee-keepers to enliven the proceedings. We expect to be present from the 3d till the 5th. Dr. Miller is here.

G. B. LEWIS & CO.

WE make the best Bee-Hives, the best Sections, the best Shipping-Crates, the best Frames, &c.

☞We sell them at the Lowest Prices.

Write for free Illustrated Catalogue.

G. B. LEWIS & CO.,
1tfdb WATERTOWN, WIS.

☞In responding to this advertisement mention GLEANINGS.

APIARIAN SUPPLIES CHEAP.

BASSWOOD V-GROOVE SECTIONS, $2.75 to $3.75 PER M. SHIPPING-CASES VERY LOW.

SEND FOR PRICES.

GOODELL & WOODWORTH MFG. CO.,
3tfdb **ROCK FALLS, ILLINOIS.**

Costs less than 2 cents per week.

THE CANADIAN BEE JOURNAL.

THE FIRST DOLLAR WEEKLY IN THE WORLD.

THE D. A. JONES CO., PUBLISHERS, BEETON, ONTARIO, CAN.

D. A. Jones is its editor, and this fact is a guarantee of its worth. It is thoroughly practical and contains weekly excellent articles from leading bee-keepers in the United States and Canada. Fifty-two numbers make a volume of 1040 pages. American currency and stamps at par. Samples free.

DADANT'S FOUNDATION FACTORY, WHOLESALE and RETAIL. See advertisement in another column. 3tfbd

HEADQUARTERS IN THE WEST

FOR THE MANUFACTURE AND SALE OF

Bee-Keepers' Supplies.

CHAFF AND SIMPLICITY HIVES FURNISHED AT A GREAT REDUCTION IN PRICE.

Nice Sections and Foundation, Specialties. A full line of Supplies always on hand. Write for our new Price List. Cash paid for Beeswax. 13tfd

A. F. Stauffer, Sterling, Ill.

☞In responding to this advertisement mention GLEANINGS.

FOLDING BOXES.

Enclose your **COMB HONEY** in our Cartons. **Prices Reduced for 1888. Sample 5c.** 20 page Catalogue of Glass Jars, Honey Labels, etc., FREE. Send for it. Address
A. O. CRAWFORD, S. Weymouth, Mass.

☞In responding to this advertisement mention GLEANINGS.

Oldest Bee Paper in America—Established in 1861.

AMERICAN BEE JOURNAL,

16-page Weekly—**$1.00** a year.

Sample Free. THOMAS G. NEWMAN & SON,
925 West Madison Street, **Chicago, Ill.**

600 DOLLARS

Will buy 250 colonies of bees in L. frame, and 65 honey-cans, cased, 2 in case; one 14-inch foundation-mill with tanks, all as good as new; one saw-table, with saws; honey-extractor and wax-extractor; 125 shipping-crates in flat; 125 supers, part filled with honey; a few thousand sections, with all fixtures belonging to a first-class apiary. 17-19d
ANTHONY OPP, Helena, Phillips Co., Ark.

OThe BUYERS' GUIDE is issued March and Sept., each year. It is an encyclopedia of useful information for all who purchase the luxuries or the necessities of life. We can clothe you and furnish you with all the necessary and unnecessary appliances to ride, walk, dance, sleep, eat, fish, hunt, work, go to church, or stay at home, and in various sizes, styles and quantities. Just figure out what is required to do all these things **COMFORTABLY**, and you can make a fair estimate of the value of the BUYERS' GUIDE, which will be sent upon receipt of 10 cents to pay postage,

MONTGOMERY WARD & CO.
111-114 Michigan Avenue, Chicago, Ill.

☞In responding to this advertisement mention GLEANINGS.

1888. 1888.

Pure Italian Bees and Queens

for sale in Full Colonies or Nuclei. Five L. frame nuclei a specialty. My queens and bees possess all the good qualities of the most desirable honey-bee.
Send for prices. **WM. LITTLE,**
6tfdb **Marissa, Ill.**

☞In responding to this advertisement mention GLEANINGS.

A Four-Color Label for Only 75 Cts. Per Thousand!

Just think of it! we can furnish you a very neat *four-color* label, with your name and address, with the choice of having either "comb" or "extracted" before the word "honey," for only 75 cts. per thousand; 50 cts. per 500, or 30 cts. for 250, postpaid. The size of the label is 2½ x 1 inch—just right to go round the neck of a bottle, to put on a section, or to adorn the front of a honey-tumbler. Send for our special label catalogue for samples of this and many other pretty designs in label work.
A. I. ROOT, Medina, Ohio.

MUTH'S

HONEY-EXTRACTOR,

SQUARE GLASS HONEY-JARS,
TIN BUCKETS, BEE-HIVES,
HONEY-SECTIONS, &c., &c.
PERFECTION COLD-BLAST SMOKERS.

Apply to CHAS. F. MUTH & SON,
CINCINNATI, O.

P. S.—Send 10-cent stamp for "Practical Hints to Bee-Keepers." 1tfdb

CARNIOLAN QUEENS.

Gentlest bees known; not surpassed as workers, even by the wicked races.

Imported queens, "A" grade, direct from my apiary, $6.00. From Austria, $5.00.

Never saw foul brood. Ask on postal card for circular.
S. W. MORRISON, M. D.,
Oxford, Chester Co., Pa.

I am now able to supply the demand for Ambrozic stock, having succeeded in getting a queen from Mr. Ambrozic, and can send either Benton or Ambrozic stock by return mail.

I have now very fine queens.

☞In responding to this advertisement mention GLEANINGS.

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Wants or Exchange Department.

Notices will be inserted under this head at one-half our usual rates. All ad's intended for this department must not exceed 5 lines, and you must SAY you want your ad. in this department, or we will not be responsible for any error. You can have the notice as many lines as you please; but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale can not be inserted under this head. For such our regular rates of 20 cts. a line will be charged, and they will be put with the regular advertisements.

WANTED.—To exchange full colonies of bees, $5.00, for poultry, seeds, tools, honey-boards, fdn., sections, F. P. saw, or any thing I can use on farm or apiary. W. H. LAWS, Lavaca, Ark.
16tfdb Ex. Office, Ft. Smith.

WANTED.—To exchange for extracted honey, a 10 h. p. horizontal engine, worth $200. I will give somebody a rare bargain. Speak quick.
15tfdb C. H. SMITH, Pittsfield, Mass.

WANTED.—To exchange dried fruit, peaches and apples, for good clover and basswood honey. Will give 1 lb. of peaches for 1 lb. of honey.
18tfdb T. A. GUNN, Tullahoma, Tenn.

DO you wish to exchange extracted honey for supplies? If so, write at once to
15tfdb CHAS. H. SMITH, Pittsfield, Mass.

WANTED.—To exchange choice Italian queens for comb or extracted honey. Correspondence solicited. JAMES F. WOOD,
13tfdb North Prescott, Mass.

WANTED.—A reliable man, with small family, who has had some practical experience in the care of bees, to work upon the farm, in the apiary, and make himself generally useful. Will furnish house, and pay liberal wages to the right man.
A. E. WOODWARD, Groom's Corners, Sara. Co., N. Y.
20-21-d

WANTED.—To exchange Twombly knitting-machine, two plates, two sets needles, good as new, for a self-inking printing-press, or a double-barrel breech-loading shot-gun, 12 gauge or less, or offers. E. S. REMINGTON,
20-21 Silverton, Marion Co., Or.

WANTED.—To correspond with an honest, moral, and temperate man, who wishes to engage in the apiarian supply and bee business in Oregon.
G. M. WHITFORD, Arlington, Neb.

WANTED.—To exchange one view camera and one portrait camera, nearly new (with full instructions to learn), for a gun, watch, steamboat, or something. For information, apply to
LEE STRONG, Atoka, Tenn.

WANTED.—To exchange a few pair of the best make of nickel-plated roller skates; also pure Italian queens, for any thing useful. Who will make me an offer? Address
J. C. FRISBEE, Suffolk, Nansemond Co., Va.

WANTED.—To exchange one 10 H. P. engine for Italian bees. J. B. MURRAY, Ada, Ohio.

WANTED.—To exchange a $5 Wilson hand bone-mill for extracted honey.
D. R. HERRICK, Troy, New Hampshire.

G. B. LEWIS & CO.

WE make the best Bee-Hives, the best Sections, the best Shipping-Crates, the best Frames, &c.
☞We sell them at the Lowest Prices.
Write for free Illustrated Catalogue.
G. B. LEWIS & CO.,
1tfdb WATERTOWN, WIS.
☞In responding to this advertisement mention GLEANINGS.

DADANT'S FOUNDATION FACTORY, WHOLESALE and RETAIL.
See advertisement in another column. 3tfbd

APIARIAN SUPPLIES CHEAP.
BASSWOOD V-GROOVE SECTIONS, $2.75 to $3.75
PER M. SHIPPING-CASES VERY LOW.
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MONTGOMERY WARD & CO.
111-114 Michigan Avenue, Chicago, Ill.
☞In responding to this advertisement mention GLEANINGS.

DRIED PEACHES, good quality, at 6 cts. per lb. Good dried apples, 4½ cts. per lb., all free from worms. Boxed and on cars at those prices.
18tfdb T. A. GUNN, Tullahoma, Tenn.

DADANT'S FOUNDATION FACTORY, WHOLESALE AND RETAIL. See advertisement in another column. 3btfd

Black and Hybrid Queens For Sale.

For the benefit of friends who have black or hybrid queens which they want to dispose of, we will insert notices free of charge, as below. We do this because there is hardly value enough to these queens to pay for buying them up and keeping them in stock; and yet it is oftentimes quite an accommodation to those who can not afford higher-priced ones.

I have about 12 choice hybrid queens for sale. Price 30 cts. each, or 4 for $1.00.
GEO. H. DENMAN, Pittsford, Mich.

Five young hybrid queens for sale at 15 cts. each. All good layers. Who wants them?
BENJ. ZURCHER, Apple Creek, Wayne Co., O.

HONEY COLUMN.

CITY MARKETS.

New York.—*Honey.*—New comb honey is arriving quite freely, and we quote as follows:
Fancy white, 1-lbs., 17@18; off grades, 15@16.
" " 2-lbs., 13@14; " " 12.
Buckwheat, 1-lbs., 11@12; 2-lbs. 10@11.
Extracted white, 7½@8½. Buckwheat, 5½@6½.
" California, white sage, 7½@7¾. Amber, 7¼@7½. *Beeswax*, 23@23½. The demand is very good, and we would advise bee-keepers to ship as early as possible and obtain prompt returns.

Oct. 10. Hildreth Bros. & Segelken,
28 & 30 West Broadway, New York.

New York.—*Honey.*—We quote:

Fancy white one-pound comb	17@18	cents.
" " two " "	14@15	"
Fair " one " "	14@15	"
" " two " "	11@13	"
Buckwheat one " "	11@12	"
Extracted, white-clover,	8@9	"
California extracted,	7½@8	"
Buckwheat "	6@6½	"
West India, per gallon,	65	"

Receipts of honey fair, demand very good.

Oct. 10. F. G. Strohmeyer & Co.,
122 Water St., New York.

Albany. — *Honey.* — Honey market is in good shape now, with good demand for any merchantable style of honey. White clover, small sections, 16@20; large, 15@18. Medium clover, small sections, 14@16; large, 13@14. Buckwheat in small sections, 12@14; large, 11@13. This range of prices is caused by so many various styles of sections, and how neatly put up. Extracted honey, easier; white, 7@8. Buckwheat, 6@7. Consignments solicited.

H. R. Wright,
Oct. 11. Albany, N. Y.

Chicago.—*Honey.*—Honey is selling quite well at present. This is usually our best month, and those intending to sell before spring would do well to get it into market before cold weather. Price 18c for best grades. Off grades, 15@17. Extracted, without change.

R. A. Burnett,
Oct. 9. Chicago, Ill.

New York.—*Honey.*—White comb honey, 15@17; 2-lb., 13@15. Buckwheat honey, 10½@12. Extracted, 6@8. *Beeswax*, 22½.

Thurber, Whyland & Co.,
Oct. 9. New York.

Columbus.—*Honey.*—Strictly fancy honey is selling on arrival, 17@18, and in good demand. We do not get what we can handle in our market.

Earle Clickenger,
Oct. 11. Columbus, Ohio.

Boston.—*Honey.*—We quote: Best white-clover 1-lb. comb honey, 16@17; best 2-lbs., 15@17. Extracted, 8.

Blake & Ripley,
Oct. 10. 57 Chatham St., Boston, Mass.

St. Louis.—*Honey.*—We have nothing new to report on honey. Very little coming in, and stocks are light. Prices steady.

W. B. Westcott & Co.,
Oct. 10. St. Louis, Mo.

Kansas City.—*Honey.*—White one-pound comb, 17@18; dark, one-pound comb, 14@15; white, one-pound, California, 17; same dark, 14. Extracted, white, 8; amber, 7; *Beeswax*, none in market.

Clemons, Cloon & Co.,
Oct. 11. Kansas City, Mo.

St. Louis.—*Honey.*—No change in market. Honey very scarce. Could find purchasers if we had the stock to offer.

Oct. 12. D. G. Tutt Grocer Co.,
St. Louis, Mo.

For Sale.—1000 lbs. of A No. 1. extracted honey, at 10c per lb., in kegs of 54 to 300 lbs. each. No charge for kegs; every cell was capped before extracting. H. O. McElhany, Vinton, Iowa.

For Sale.—600 lbs. of buckwheat extracted honey, in half-bbls., holding about 150 lbs. each. I will take 6c per lb., f. o. b. J. I. Parent,
Charlton, Saratoga Co., N. Y.

HONEY
FOR SALE
CHEAP.
Address
JAMES HEDDON,
DOWAGIAC, MICH.
Mention Gleanings. 21tfdb

HONEY.
We advise bee-keepers not to sell before getting our high prices. State quality, quantity, and style of packages; send samples of extracted, with sender's name marked on same.
F. G. STROHMEYER & CO.,
18-21db 122 Water St., New York.
☞In responding to this advertisement mention Gleanings.

Wanted.—To purchase one to three thousand pounds choice white-clover honey in one-pound sections. Crates to average about 20 pounds each. J. T. CARSON, 18-21db
325 W. Main St., Louisville, Ky.

DADANT'S FOUNDATION FACTORY, WHOLESALE AND RETAIL. See advertisement in another column

THE BEE-KEEPERS' REVIEW
For September is specially devoted to "Food, and its Relation to the Wintering of Bees." If you wish to know the view of such men as Mr. Heddon, J. H. Martin, L. Stachelhausen, Dr. L. C. Whiting, Dr. Miller, R. L. Taylor, and O. O. Poppleton, read this number. Price of the Review, 50 cts. a year. Samples free. Back numbers can be furnished.
THE PRODUCTION OF COMB HONEY.
A neat little book of 45 pages; price 25 cts. The REVIEW and this book for 65 cts. Stamps taken, either U. S. or Canadian. Address
W. Z. HUTCHINSON,
613 Wood St. Flint, Mich.
☞In responding to this advertisement mention Gleanings.

A RARE CHANCE TO BUY.
Having come in possession of the following apiary and fixtures, I offer it for sale cheap. Ten colonies Italian bees; 75 Langstroth and Simplicity hives; 50 Heddon supers; 300 brood-combs; 200 empty frames; 100 wide frames; extractor, uncapping-can, knife, division-boards, etc.; 80 patent caps; also a new octagon bee-house, in sections, for moving; will hold 76 colonies. All above are good as new. Write for prices, and I will please you.
J. C. FRISBEE, Suffolk, Nansemond Co., Va.
16-14d

FOR SALE. Some very fine Houdan and Black Minorca cockerels, about full grown, and fine ones; also light Brahmas, pairs or trios. J. E. JOHNSON,
20d Mentor, Lake Co., Ohio.

FREE to all, A WHITE-GRAPE VINE. Send 10 cents for postage. etc.
Point Breeze Grapery, Reading, Pa.

The next regular meeting of the Stark Co. Bee-Keepers' Society will be held in Grange Hall, Canton, O., Saturday, November 3rd at 10 o'clock, A. M. Matters of importance to bee culture will be discussed. Every bee-keeper is requested to be present. Mark Thomson, Sec.

GLEANINGS
IN
BEE CULTURE.
DEVOTED·TO·BEES·HONEY·&·HOME·INTERESTS.
F.A. Whiting

Vol. XVI. OCT. 15, 1888. No. 20.

TERMS: $1.00 PER ANNUM, IN ADVANCE; 2 Copies for $1.90; 3 for $2.75; 5 for $4.00; 10 or more, 75 cts. each. Single number, 5 cts. Additions to clubs may be made at club rates. Above are all to be sent to ONE POSTOFFICE.

Established in 1873.
PUBLISHED SEMI-MONTHLY BY
A. I. ROOT, MEDINA, OHIO.

Clubs to different postoffices, NOT LESS than 90 cts. each. Sent postpaid, in the U. S. and Canadas. To all other countries of the Universal Postal Union, 18 cts. per year extra. To all countries NOT of the U. P. U., 42 cts. per year extra.

MANUFACTURED (?) HONEY.

QUOTATIONS IN GLEANINGS IN REGARD TO IT.

AS the business for the second evening of the convention at Columbus opened, President Mason gravely announced that some heavy charges had been made against *brother A. I. Root*. He said he hoped that brother R. would be able to explain matters satisfactorily, but that the whole thing looked very dark and suspicious. Thereupon he produced GLEANINGS IN BEE CULTURE for Oct. 1. Turning to page 748, he with great gravity read the report from St. Louis, from W. B. Westcott & Co., dwelling with much emphasis on the sentence, "Extracted *manufactured* stock, 4 to 5 cts." Your humble servant asked to be shown where on the pages of GLEANINGS such a sentence occurred. The president handed him a copy, and there was no getting around it. GLEANINGS IN BEE CULTURE, that has been so active in months past in contradicting slanderous reports of the newspapers, and insisting that, at the present time, very little spurious honey was to be found in any of our markets, has actually been quoting "manufactured honey at 4 to 5 cents a pound," as if it were a regular and reputable article of merchandise. A good deal of sport was indulged in at the expense of the editor of GLEANINGS; but upon his promise to investigate, and make ample apology and correction, he was let off for the time being, and the proceedings of the convention went on. It seems there was a good deal of hurry and rush in many directions just before John, Ernest, and myself got away for three days at the centennial exhibit. As the market reports are usually not much more than a change of figures from the preceding reports, I believe I skipped them. Ernest did the same, and the compositors, perhaps, did not think why "manufactured stock" should not be all right. I at once wrote to W. B. Westcott & Co. for an explanation, and here is what they say about it:

> *Mr. Root:*—Your favor of the 6th inst. is at hand, also our postal, Sept. 22. What we meant by manufacturers' stock was dark extracted honey that was too dark for table use, and that we sold to manufacturers of crackers, to tobacconists and others, such as mead men, etc. We did not mean to convey the idea that the honey is manufactured or adulterated. W. B. WESTCOTT & CO.
>
> St. Louis, Mo., Oct. 8, 1888.

It was my impression, as soon as I saw it, that the report alluded to means the poor honey usually sold for manufactur*ing* purposes as above. In view of the damage, however, that has been done to our industry, I think it behooves us all to be careful how we express ourselves. Had the above item read, "Second quality, dark extracted honey for manufacturing purposes, 4 to 5 cents," all would have been well, and perhaps no great harm has been done as it is. The report was made on a postal card, and the end of the word "manufacturers" ran off the margin, so it was a very difficult matter for the compositor or proof-reader to decide just what the word was intended to be; but it certainly looks more like "manufactured" than any thing else. By making the word terminate with *ers* instead of *ed*, the meaning would be quite different.

MUD-WASPS.

SOMETHING NOT ABOUT BEES.

It was with great interest that I read Prof. Cook's article about "mud-wasps," in GLEANINGS for Sept. 15th; and were it not that I wish to help the juveniles to become interested in the study of natural history, I should not say a word on the subject further than the professor has done. However, as I believe that, to get children interested in studying the wonderful things which nature unfolds to us is one of the helps which lead on to a higher and nobler manhood and womanhood than would otherwise be attained to, I will give some of my observations regarding the mud-wasps, hoping that the juveniles will be sufficiently interested to see which is right on a few points in which Prof. Cook and I differ.

Years ago, when I was a "juvenile" (I have not fully past that stage yet), we had at our house what we called the "woodhouse chamber," in which was stored relics of the past, and also a bed in which I was called occasionally to sleep on nights when other beds in the house were filled with company. This room was open on one end, which was toward the woodshed, and on one side of the woodshed an opening was left for getting wood into the building so we could work out of the storm, on rainy and snowy days in winter; so that practically there was no hindrance to birds and insects frequenting it. This chamber, with its old relics, had great attractions for me, so it will not be wondered that I spent many pleasant hours therein; and it was here that I first learned of my friend the mud-wasp. One day while up there looking at an old spinning-wheel head, and planning how I could make my little water-wheel out at the brook turn it for me, I heard a singing noise which sounded something like some one singing softly the following: "Tee-ee-e, wee-e, wau-au-au, tau, au, tety tauty tau," etc., which attracted my attention and aroused my curiosity to such an extent that all thoughts of my water-wheel left me, and I went to see what produced such a funny noise. Arriving where I thought it was, in a dimly lighted part of the attic, I stopped and listened, but all was still. I sat down to wait, till my eyes became used to the dull light, hoping that I could see what it was that made the noise, even if it was then keeping still. In a moment or two I heard the low buzzing of the wasp's wings, the owner of which was soon revealed to my vision, for by this time I could see quite well in this dimly lighted place, and, following the wasp with my eyes, it soon stopped on some rolls of dirt about as large as my little finger was at that time. After passing over these rolls of dirt for a little time, it came to one end of one of the rolls that was wet, as I knew by the color. The wasp now lowered her head, when I saw that she had a little ball of moist dirt in her mouth, and immediately on the dirt touching that of the cell or rolls, as I then called them, the song commenced, and kept on until I fairly laughed with delight. Since that time I have heard that song hundreds of times, but never so loud as on that day; not that the wasp sings any louder at one time than at another, but on this occasion this wasp was building her nest on a piece of paper that had been pasted over a crack in the boards to keep the wind from blowing on to the bed on which I sometimes slept, and this piece of tightly drawn paper answered to the vibrations which the wasp made in producing the sound, very much as the string to the violin does to the touch of the bow. Well, this wasp was of a dark brown color, her abdomen and other parts of her body shining like polished ebony; and in all of my watching of this curious insect ever since, I have never seen one of any other color which made this singing noise, nor have I ever heard this singing but that, upon looking, I have found the same colored wasp at the same work—that of building cells. By this noise the juveniles can easily tell how to find these wasps and their nests.

While sitting there watching, there soon came along another wasp of a shining steel-blue color, and this one had a spider in its mouth, which it deposited in the opening to the cell, along which opening the other wasp was building. This blue wasp was not more than three-fourths as large as the other, but the two seemed to be at work in unison; for as the cell progressed in building by the brown wasp, the blue one filled it with spiders. I have always supposed that the brown wasp was the female, and the blue one the male; but this may not be so, for I am no entomologist. As Prof. Cook says, the spiders peopling this nest are all of one kind, that being the kind which weave the handsome open web we see sparkling with dew upon it on still mornings in July and August. Now, the main point in which Prof. Cook and I differ is where he says that "each spider receives a wasp-egg," while all of my observation goes to prove that the egg is deposited in the bottom of the cell, and that the spiders, varying from 8 to 20 in number, according to size, are put in for the larva, when hatched from this egg, to feed upon, said larva eating as many as 20 spiders in some instances that have come under my notice, judging from the refuse which was left in the cell, and from opening them in all stages, from the egg to the full-grown pupa. Now, children (and older readers too, if they feel so disposed), study into this matter and tell us next summer which is right, and by so doing you will learn much that will make life interesting to you. Boys that sit around country stores on dry-goods boxes, and chew tobacco till the spittle runs out of the corners of their mouths, like some I know of, do not make the Wendell Phillippses of the past; and girls who do not aspire higher than to look after the wants of their wax dolls all the while, will never make the Mary T. Lathraps of the present.

Borodino, N. Y. G. M. DOOLITTLE.

Very good, old friend. There is one thing that particularly pleases me in this little sketch. Friend Doolittle, when even *a boy*, was very fond of the study of insects. I have heard that very song of the mud-wasp, and I believe I have more than once been soundly reprimanded for being gone so long, when the truth was I was so intent on studying these insects, the mud-wasps, as well as their near relatives that build the paper nests, which we called hornets, that I neglected my regular work, and sometimes, perhaps, kept father and mother waiting for me to get back. I do not remember, however, that I ever saw the two insects of different colors. Friend Doolittle supposes that the one that brought spiders was the male. Now, if the wasps have queens, drones, and workers, is there not some mistake here? The queen, of course, must lay the eggs. But if the drones hunt spiders, what in the world do the workers do? I think we shall need some professor of entomology to straighten us out before we get through with these near relatives of the honey-bee.

CONVENTIONS.

PROF. COOK TALKS TO US ABOUT THE IMPORTANCE OF BEING IN ATTENDANCE, ETC.

SINCE returning from the meeting in Columbus, I am more than ever convinced of the value and importance of such gatherings. I have always felt that there could be no mistake in this matter. The common practice of all intelligent societies sustains this position. We say the farmers, as a class, have suffered from isolation and the lack of such associations, and that the grange was a Godsend to the farmer, in that it supplied this long-felt want. Mr. Heddon and I have often argued this matter *in extenso*, both by word of mouth and by letter; and while I have very great respect for Mr. Heddon's ability as a bee-keeper, which is rarely surpassed, I can not but believe that in this matter he is wholly wrong. The opinion of the world, as expressed in actions, is with me and not with him.

There is one serious obstacle in the way of making our meetings in the highest degree satisfactory; that is, the great size of our country. If our association is to warrant calling it North American, we must not limit the meetings to one section of country, nor have we done so. New York, Rochester, Toronto, Cleveland, Detroit, Columbus, Lexington, Cincinnati, Indianapolis, and Chicago, are wide apart. I think it would be well to go to St. Louis, Louisville, Philadelphia, Pittsburg, Richmond, and New Orleans. But it has always appeared to me that such meetings were more successful where some one appeared in person, invited the association, and so became in some sense responsible for the success of the meeting. Thus it was that I moved and favored the going to Brantford next year. I feel sure that Mr. Holterman will spare no pains to make the meeting a success. I should have preferred, had we been invited, to go to St. Louis or Kansas City. Now, if we thus migrate we can not expect to have the same persons present each year, nor representatives from all sections. It is too expensive. Of course, if State associations would appoint and bear the expenses of delegates this might be done. But from my observations in other associations, I much doubt the success of any such plan, much as I should like to see it succeed. Yet for all this I still think we can make the meetings representative. While we may not secure the personal presence of Smith and Jones at each meeting, we can secure their brains, their thought, which, after all, is what we want. I believe most thoroughly that what we need and must secure is such action by our secretary, in preparation for each meeting, as will call forth in brief, say fifteen minutes, carefully prepared papers, the best that is known, from the best bee-keepers of the several States. I say, *prepared* papers. I mean just that. Then we get mature views and concise, well-digested pointers. Our best men will do better, when time is taken to carefully prepare themselves. Thus we shall have a dozen or fifteen just such admirable presentations as Dr. Tinker gave at Columbus. Then we have a representative meeting. We have some facts of real value presented from all sections. We have some topics to hold us in our discussions. Oh! but it did me good to have my dear friend Dr. Mill—— but I must not call names—say to me at Columbus, "I believe you are right in this matter of papers." It is such a comfort to see our friends converted. If I could only get Mr. Heddon out to conventions, I should soon have him on my side as to their importance.

I hope this matter will be fully discussed. I desire that our next meeting be a grand success, and thus a type of the many more to follow it. I believe these meetings may be a great blessing to all, not only to those who attend, but to those who stay at home. I have made some suggestions in the above. Who will speak next? A. J. COOK.

Agricultural College, Mich.

Friend Cook, I heartily agree with all you say; and although I myself am much inclined to backslide a little, especially if I do not attend the conventions for a while, I never get home without feeling that I am a wiser and a better man, and with a feeling, too, that I have been fulfilling better the purpose for which God placed me here upon this earth. In other words, I do believe that the man who stays at home hurts himself. The great troubles and trials that beset us through life are often caused by not being acquainted. The uncharitableness, the greed, and selfishness, which we see exhibited are the consequences and outgrowth of staying at home—yes, oftentimes of sticking to business. Of course, there are people who do not stick to their business enough, or, perhaps, not in the right way; but they are exceptions to the general rule. Inasmuch as our good friend the editor of the *American Bee Journal* gives a carefully prepared report of all the proceedings of the convention, we have not thought best to take space for it here; but I want to speak a little of the social time we had outside of the regular meetings. Prof. Cook has spoken of the expense of traveling in order to attend the North American conventions. Well, I have before spoken of the expensive hotel bills that we are many times called upon to pay; and I do not know but I was as much instrumental as any in deciding at Columbus that we should all stop at a low-priced hotel. Mr. Earl Clickenger, a commission man (by the way, we had commission men as well as bee-keepers at our deliberations), informed us that he boarded at a very good moderate-priced house, where the charges were only 25 cents a meal and 35 cents for bed, providing a lot of us would consent to room together. Now, my first feeling was that I should rather prefer a room by myself, so I could go right to sleep;

but duty pointed otherwise. Seven of us were put in one moderate-sized room; and if we were not acquainted when we went into the room we certainly were before we got out. A great *tall* young farmer from Michigan, gave his name as Mr. *Short* (see p. 616, Aug. 1), and this started merriment. As we were all bee-men, we soon, in regular Yankee style, opened up a lot of questions on each new comer. If *he* was a stranger when the door opened, *he* certainly was not when he went out. Frank A. Eaton, our good secretary of the Ohio State convention, suggested that we had better look out for our valuables, because the fire-escape came right up to the window; and as bee-keepers are all men who love plenty of air, we wanted to sleep with the windows open; so we got out of bed and scrambled for our money, watches, etc. I remarked, that the sum total of my possessions was about $2.50 and a *Waterbury watch.* At this, friend E. suggested that we all lie down and quiet our apprehensions; for if brother R. would just hang his Waterbury watch where it would be plainly visible, any thief, when he crawled up the fire-escape and looked into the room, would clamber down again and go off in disgust. Before we got to sleep I got to laughing until it occurred to me that I had not had such a good hearty laugh, to shake my whole frame from my fingers' ends to the tips of my toes, since—when do you suppose? Why, since the last *bee-keepers' convention* I attended at Utica, N. Y. I believe those hearty laughs not only shake the conceit out of me, but possibly at the same time some of the nervous prostration I have talked about. Why, during the three whole days of the convention I did not have a single nap before dinner, and I did not go to sleep at night until long after my usual hour; but I did not feel used up a bit. I just laughed, and enjoyed myself all day long, and ate such hearty meals that I could hardly believe it was myself. We bee-men were all put together at one table, as a general thing. At this last convention there seemed to be an unusual disposition among all of them to make everybody else feel pleasant; and, no matter what turned up, no one, so far as I can remember, felt hurt.

Before our last *evening* assembly opened we were informed that the Senate Chamber, which we occupied, must be vacated exactly at nine o'clock, for another crowd. Yankee-like, we inquired what the next crowd were going to do. The reply was, that a large company of male jubilee singers were to practice on some campaign songs; and when we suggested that we bee-men were fond of music, we received a very cordial invitation to remain. Well, the singing was the grandest and the finest, I believe, I ever heard in all my life. It never dawned upon my simple understanding before, that the human voice unaided is capable of such flights of melody as we had there. These singers, of course, and the audience, were, as a rule, members of one of our great political parties. Now, our bee-keepers do not all think alike nor vote alike, and I do not know but I should be a little ashamed of them if they did; but I was happy to hear those who hold different political views from the sentiments of the campaign songs join heartily in the enjoyment of it.

Our talents, abilities, and accomplishments are in different lines. Friend Newman is, perhaps, not so much of a bee-keeper as some of the rest of us; but he has a wonderful gift in the ease and clearness with which he makes himself understood to everybody. President Mason had to be continually telling us to speak louder, while friend Newman could, without doubt, make himself heard and understood to a thousand people. He is perfectly at home and at ease in addressing an audience, while a great many, like myself, feel neither at home nor exactly at ease in such a place.

On the centennial grounds is a great building erected exactly on the plan of a half-sphere—an immense dome, so high and broad that one speaker can easily make himself heard by 12,000 people. Not a stick of timber nor a pillar, nor even an iron rod, breaks the space inclosed; and we soon discovered that the acoustic properties of the building were wonderful. A piano and an organ stood there invitingly open; and by a little persuasion Dr. Miller was induced to sit down and sing my favorite hymn, "The Rock that is Higher than I." To my surprise, and perhaps a little to his surprise also, he discovered that his voice would fill the room easily; and before he got through, several came forward and joined in the hymn. Then we had the pieces which we give in this issue and on page 756 of the last number, and several more joined in the chorus. One friend attracted our attention by his beautiful voice, and Dr. Miller asked him if he was a *bee-man.* He said he was not a bee-man, but we found out he was one of the 150 who surprised and delighted us at the campaign meeting the night before; and as we chatted with him we felt that we had found a new brother—yes, a *brother in truth,* although those that sang together represented the politics of at least three of our great political parties.

After listening to the music, by invitation we attended the close of the session of the Ohio State Horticultural Society, and I was agreeably surprised to meet, face to face, quite a number of the men of Ohio whom I had read of, but whom I had never before had the pleasure of meeting; and I tell you, friends, it did me a great lot of good to have them express pleasure at meeting *A. I. Root.* I felt ashamed of myself to think I had never before been present at a meeting of the horticulturists of my native State. After the social talks in regard to fruit, I enjoyed looking at the samples on the centennial grounds, as I never enjoyed looking over fruit before. I not only got acquainted with fruit-*men,* but I became somewhat acquainted with the *fruits* of our native State; and somebody in the horticultural rooms was kind enough to send a basket of choice fruits over to the apiarian exhibit. My friends, there is no way in the world in which you can enjoy a nice apple like hearing enthusiastic fruit-men talk about apples and then to take a bite of one of the very apples they have been talking about. To thoroughly enjoy an apple, one must be acquainted with it beforehand; and I am impressed again with the fact that it is possible for us to go through this world of ours having eyes but seeing not; and ears, but hearing not; and on the other hand there are grand enjoyments provided for us, even in this world, in the way of using our eyes and ears and other senses intelligently; and the only way to use them intelligently is to get acquainted—to know by face and to know by reputation; and if we stay at home there is no way in the world by which we can know about and enjoy in the *right way* these things God has, in his wonderful wisdom and love, provided for us.

SLEEPY-HOLLOW BEE-NOTES.

RANGE OF BEES.

IT is undoubtedly true, that bees will sometimes forage at a distance of three or four miles from home; but I am fully satisfied that they rarely go more than a mile and a half or two miles, even when honey is very scarce. Last spring and early summer, the bees nearest my farm were exactly a mile and a quarter away. Within a mile and a half there were sixteen colonies, and two and one-half miles away in a straight line was an apiary of one hundred colonies. During the period of which I write, dry weather prevailed and nectar was scarce. Every thing was favorable to cause the bees to range a long way from home. There were many flowers on the farm, and many clumps of basswood bloomed profusely, but not a bee was seen on Sleepy-Hollow Farm, though I looked carefully for my little friends every day. At the distance of a mile and a half from the apiary of one hundred colonies I saw an occasional bee on the basswood, and at one mile the trees fairly roared for two weeks. The bees from the large apiary had every incentive to go further, for their own territory was overlapped by that of a still larger apiary only half a mile beyond. In July I moved three colonies to the farm for queen-rearing purposes, and during the remainder of the season the goldenrods and asters in the vicinity received daily visits. My own bees, being Syrio-albinos, were easily recognizable, since there were none but blacks nearer than three miles. I never saw one of these yellow bees more than a mile from home, though that fact may be easily accounted for by their having all they could attend to nearer home. From what I have observed in my own vicinity, I am satisfied that a country as diversified as is this, by prairie, woodland, and meadow, will support with profit an apiary of 100 colonies every three or four miles. I should not feel very uneasy about doubling the number.

PLEURISY ROOT.

I am loth to dissent from the opinion of the many bee-keepers who are just now "booming" this plant so vigorously, but the truth must be told. It grows profusely on the prairies and meadows of this part of Iowa; but during the past two years it has not been visited by the bees, even occasionally. Butterflies hover over it by the thousand, but not a bee troubles herself about it through all the long summer. It may be the seasons were not favorable. On that point I will not be certain, for my observations do not go back further than two years; or it may be that there is something in our soil that modifies the character of the plant. As the question now stands, I would as lief invest in thistle seeds with a honey crop in view as in the seed of the pleurisy root. I speak for no locality but my own. Here the ironweed is a thousand times to be preferred, for the bees are busy on it all day long, while the pleurisy root beside it goes unvisited.

Audubon, Iowa. Z. T. HAWK.

Friend H., my experience in regard to the distance bees work agrees so exactly with yours that your opening sentence sounds almost as if it were copied from something I have written in reference to the subject. I am well satisfied that our bees do not like to go more than about two miles from their home for stores. At the same time, I am well aware that we have had abundant testimony to the effect that they do, in other localities, go more than twice that distance. —Your remarks in regard to the pleurisy root warn us that, if we undertake to raise plants for honey alone, we may be rewarded for our pains by finding no honey at all.

HONEY-BOARDS.

ONE MADE OF STRIPS OF UNPERFORATED METAL.

MR. ROOT:—Thinking I had not afflicted you sufficiently this forenoon, I will give you something new. While the idea may not prove suggestive, it may perhaps be amusing. Wishing to be able to make every thing myself, and not to be compelled to send to Mr. Root or any one else for every thing, I "conceived and brought out" this queen-excluding honey-board. You may not think the issue a very healthy or promising one, but I can assure you that it works, and is cheap. I make a frame of ½ x ⅜ stuff, with pieces of same material crossing every 4¼ inches, upon which I tack strips of tin, zinc, or galvanized iron. As I place my frames 1½ inches apart from center to center, I cut these strips 1⅝ inches wide, and as long as the frames. Now I tack these on my frame, leaving a space $\frac{3}{16}$ of an inch, to allow a passage for workers, but not for queen. If I wish to make one for Carniolans I can leave a space of $\frac{9}{32}$ if necessary. The spaces in the honey-board come directly over the spaces between the frames, and the sections rest upon the ½ x ⅜ cross-piece, every 4¼ inches apart, thus bringing the sections as near as possible to the brood-chamber, by leaving only a bee-space between, of ⅜ inch (the thickness of cross-piece). I can easily tack my strips at a uniform distance apart, by putting two pieces of iron between, $\frac{3}{16}$ inch thick, and shoving the strip up tight to these before tacking. I can thus make a honey-board to fit any kind of bees in a very few minutes, and at very little expense. Kindly let me know what you think of the honey-board. S. A. RUSSELL.

Newmarket, Ont., Sept. 26, 1888.

Such a honey-board has been described before, if we are correct. It will probably work, but we don't think it would be as satisfactory as one employing perforated zinc. The greatest objection to it is, that it would be a very difficult matter to space each strip of metal accurately, and still more difficult to nail it so. Bear in mind, that only a small trifle in variation would make such a honey-board non-queen-excluding; $\frac{3}{16}$ of an inch spacing is a little too wide to be queen-excluding; $\frac{9}{50}$, and even $\frac{8}{50}$ of an inch, is preferable. We are aware that Frank Cheshire states that the Carniolans are larger than the Italians. They appear larger, and perhaps are a little larger; but to test the matter for ourselves we used a queen-excluding honey-board over a hive containing bees from an imported Carniolan queen, one of Frank Benton's best selected. The honey-board in question had perforations $\frac{9}{50}$ of an inch wide, and yet there was no difficulty about the bees passing through it. As to the expense, we think your honey-board would cost as much or more than ordinary perforated zinc sheets, wood-bound.

SELLING HONEY ON COMMISSION.

FRIEND H. R. WRIGHT REPLIES TO THE ARTICLE ON PAGE 753, LAST ISSUE.

FRIEND ROOT:—The communication in last issue, signed Greeney No. 2, in justice to our many friends in the bee-keeping industry calls for some explanation, as this person who *needlessly* styles himself "Greeney" gives no dates when he sent us his honey, leaving it to appear that it was a transaction of this season.

The facts are these: John Andrews, of Patten's Mills, N. Y., in the year 1887 sent a man to this market with his crop of honey to sell. Owing to its not being in any thing like merchantable shape, he could not sell it, and left it with us to sell; and after trying to sell it for two months we finally sold it to A. H. D. Smith, a grocer of this city, at 7 cents per pound, and this is the first notice we have had from Mr. Andrews that he was not satisfied. The honey was mixed all through, not being a box of a straight grade, and scarcely a comb that did not have two kinds of honey in it, and the combs were of the very unusual shape of about 5 x 10 inches, weighing about 3 pounds each, and in a very homely, unclean shape, having been packed in various-shaped boxes, holding 50 to 65 pounds of honey, without any glass or any thing to show that the box contained honey, which fact may account for sending a man along to tell everybody handling it that it was honey, while, if he did his duty it was a failure, for the honey was leaking when received, and, after being set in store awhile, the pile was quite well glued together by the draining honey, which did not help the sale of it.

This friend has mistaken his calling, or evidently thinks that people are still buying *bee-tree* honey instead of wanting honey now in the most attractive shape possible. It is such bee-keepers as this who have been injuring the industry with their careless way of raising honey; and the sooner they are out of the business, and no such honey on the market, those who do take care to produce choice honey, and put it up in attractive shape, will receive their true "reward of merit," or a fair recompense for their labor and painstaking. No slouch should be encouraged in the bee-keeping business.

Albany, N. Y., Oct. 10, 1888. H. R. Wright.

And now, friends, we have both sides of this matter. I am very sorry indeed to see the spirit of antagonism that seems to be evident in both letters. I hope friends Wright and Andrews will excuse me for saying so. One of the greatest troubles of the present day is this conflict and bitterness between labor and capital, and it comes about by just such occurrences as the one before us. For God's sake, dear friends, do have a little more charity, both of you, and remember that this world brings trials, vexations, and disappointments, with even the best of us. I have stood in the place of both producer and purchaser, and I can fully sympathize with both of you. I was afraid, from Mr. Andrews' account, that his honey had not been stored in marketable sections, and shipped in neat and attractive crates, which are now the rule in our commission houses. I am sorry that friend Andrews did not give the date when the honey was shipped; and had he told us it was shipped in large boxes, without glass, I could have told him it was no wonder that his honey did not bring a better price. I have seen honey carefully lifted from the cars, with the amber liquid oozing from every case, and with the cases so stuck together it was impossible to lift one without pulling up the one underneath it; and I would rather be excused from paying *half price* for even *nice honey*, if unloaded in this shape. It takes a great amount of labor to do any thing with it at all, and the chances are that there is nothing that can be done to make it salable at any kind of a fair price. From what I know of such cases as the one before us, I think very likely that the statements made on both sides may be a little careless; but I hope that these two friends will take my advice, and drop the whole matter right where it is. The lesson is excellent, and the moral is excellent as it is to all of us. Let those who ship honey to commission houses visit our large cities, and get the commission men to show you what needs to be done to get good prices; and to save unpleasant feelings, perhaps the commission men had better notify shippers at once when honey does not seem to go off at the price expected, and ask for further instruction. No worse calamity can possibly happen to bee-keepers than to get into a fashion of calling commission men bad names, and condemning them as a class. In the case before us, I feel sure that these two friends are both good men. They have got stirred up, and the *ugly* sticks out a little, as it perhaps might with almost any of us under like circumstances. May God help me to convince them that I am right in regard to the matter, and that there is no reason in the world why they should not shake hands over it and drop it, with no unkind feelings laid up at all. Persistently holding on to just such cases as this one, and cherishing hard thoughts and feelings, is the root of our great troubles, ending in strikes, mobs, riots, and anarchy. The remedy is for bee-keepers and commission men to get *thoroughly acquainted* with each other; and there is no better place to do it than at our bee-keepers' conventions. Prof. Cook, in his remarks in this issue, strikes at the very root of the matter. Let us get acquainted, and *help* each other, instead of waging *civil war* here in our own beloved land.

GRADING AND DISPOSING OF SECTION HONEY AT THE CLOSE OF THE HARVEST.

SOME SEASONABLE HINTS FROM DR. MILLER.

When sections are taken off at the close of the white-honey harvest, they vary all the way from those perfectly finished to those upon which the bees have not worked at all. After the perfectly finished, come those full of honey, but having a few cells uncapped. If these uncapped cells are on the margin adjoining the wood I should class them with the best. If there are uncapped cells away from the wood, ranging from half a dozen cells to a full side of the section, then it is a little difficult to decide just what is best to do. It depends a little upon what may be expected further in the way of a honey-flow, and also somewhat upon the market. If a few cells are filled out with dark honey, and then capped, they will in some, if not all markets, be just as unsalable as if left uncapped and pure white. For it must be remembered that, after a comb is what is called full but unsealed, it is really not full, but will weigh considerably more after it is sealed. These sections under consideration may be finished up by feeding back white, extracted honey; but after a good deal of experience in that line, I am getting more and more away from feeding back, and I think, on the whole, I would sell these sections with a few cells uncapped, just as they are, at a small reduction in price. If, after the clover crop, there comes, shortly, cucumber, or some other honey nearly as light as clover, then it may be best to allow the bees to finish up the sections, especially if a fourth or more of one or both sides are unsealed. As a general rule, I would make a second class of all sections apparently full, but lacking the sealing. Then come those not full of honey, and not sealed. They may be filled out by the fall crop, if that is a pretty sure thing, or they may be extracted. If they have not proceeded to the capping stage, and are kept clean, they will, after being extracted, come into play nicely the next season: and if it is profitable to raise extracted honey by extracting from full frames, why may it not be profitable to extract from sections?

Then come those sections which are not as much as one-fourth full. If it is very desirable to have more extracted honey, or if time is not valuable, these may be classed with the last lot, and extracted. I prefer, however, generally, to let the bees clean out all such sections as have in them only a few drops of honey, and from that up to a quarter of a pound; so these sections are put with those that have been extracted. I set it down as an important rule, that no section in which there has been the least drop of honey, and which is intended to be used again, shall ever go into winter without being first thoroughly cleaned out, and that *by the bees.* This for more than one reason. It is easier to keep them free from mice, if no particle of honey is on them. They will look brighter for next season, if cleaned perfectly dry this fall. And, most of all, if not cleaned bone dry, the little particles of honey left in the cells will, sometimes at least, injure the quality of the honey stored in them next season. The earlier they are cleaned out by the bees, the better. They may be put on the hives of colonies which are a little short of stores, and left for the bees to carry down. This is probably the best disposal so far as saving the honey is concerned. But that is a secondary matter, compared with getting the sections cleaned, and sometimes the bees are slow about taking down the honey from above, so I prefer a different plan. At a distance of five rods or more from the apiary, place a super filled with the sections in question upon a super cover or other flat surface, letting the super project over just enough at one corner so that a single bee can get in from below, and having it bee-tight at all other points; then cover the top with a super cover so that it will be kept dry if a shower comes. Instead of a single super, I have had as many as six piled up, but only the entrance for a single bee at the bottom of the lower super. Now, don't allow an opening large enough for several bees to enter, and then grumble because the bees gnaw great holes in the comb, and even tear down entire sections. They'll surely do it if they can enter fast enough. After the honey seems all emptied out,—and this may be in half a day, or it may be in three days,—take from the pile one or all except the lower one, and put them in another pile close by, making the pile in every respect as before, only allow free entrance for a number of bees. The opening is from below merely to keep all rain-proof. I said, take all from the first pile except the lower one. That keeps your old entrance as before, and you can now put on supers of fresh sections to be cleaned; and, as fast as emptied, pile them up on the second or other piles, allowing the bees free access, and leave them thus a good many days, so that you may be sure the bees have licked off from them the last vestige of honey. A foot-note may and ought to tell you to beware of robbing; but follow my instructions literally in detail, and no robbing will occur.

C. C. Miller.

Marengo, Ill.

Friend M., you have omitted to say any thing in regard to the matter that came up at the national convention in Chicago, about disposing of old sections in some other way than putting them on the hives for the new honey crop. If only a small part of the evidence brought to light at that meeting in regard to this matter is true, I think we had better sell, or get rid of in some way, as many of the unfinished sections as we possibly can, and avoid, as much as possible, having them left over to make a second quality of comb honey the next season. I do think this matter of feeding bees honey in the open air is dangerous business in the hands of a novice, no matter how faithfully he may *try* to follow your directions. Things won't work with them as they do with you, and then the neighbors will be annoyed by the robbing bees, and a neighborhood quarrel may result, and especially if there are many near neighbors. The season of the year probably has something to do with it; but in our locality, when our bees have got a taste of stolen sweets, and become savage, I can not believe that you could put many outdoors in the way you describe, without raising a big row in this whole neighborhood; therefore whoever undertakes to clean out sections in this way will do well to remember that their old friend A. I. Root says, try a little at a time, and see how that works before you put out a big pile of sections with a little honey in them.

GRAVENHORST.

A SKETCH OF THE MAN AND HIS METHODS OF WORK.

THE name of the German bee-veteran, C. J. H. Gravenhorst (born Sept. 26, 1823), is well known to the readers of GLEANINGS. The teachers of Germany educate not only the people in the science of reading and writing, but many of them are likewise excellent amateur bee-keepers, silkworm raisers, etc., etc.; so, too, our friend kept bees as long as he acted as teacher. In 1863, a disease of the ears made it necessary to quit teaching, and from this time he kept bees in the city of Braunschweig, as a specialist, and for the support of his family. Near this city are the wide plains of Lusneburg, with the honey-yielding heath, where bee-keeping has been a profession for centuries. Here the old heath bee-keeper wanders with 100 or more straw skeps from one honey-flow to the other till late in the fall; and they are masters in their trade, those old bee-keepers. Here friend Gravenhorst got his first education as bee-keeper. As the movable comb was more and more used, he used hives after Dzierzon and Berlepsch. He saw the advantages of these hives, but his income was not so large as he wished. In many respects the old straw skeps were better. So the aim to unite the advantages of movable frames with the advantages of the straw skeps caused Gravenhorst to invent his hive, the "bogenstuelper" and he made it public in 1865. Here I will remark, that Gravenhorst's hive was the first one in Germany by which any frame could be taken out without removing a number of other ones, as in our Langstroth hive, and Gravenhorst has spoken and written for this principle all the time.

CJHGravenhorst.

As to his originality, his whole management and many things finally adopted here in the United States were known and used by Gravenhorst first, although in another form. On the other hand, his knowledge of the English language enabled him to study our American methods, and two voyages to England showed to him the progress of apiculture in that country, and he did not fail to use what he learned, of course modified for his contrivances. For a long time he was the only bee-keeper in Germany who reported in bee-papers the advance in the United States and England. His experiences are laid down in many articles for bee-papers.

About 1873 Gravenhorst published the first edition of his book, *Der Practische Imker* (*The Practical Bee-Keeper*). It was merely a pamphlet describing his hive and management. In 1878 the second edition came out, enlarged to a manual for the bee-keeper, and now I have before me the 4th edition, 1887, beautifully illustrated, and much enlarged and improved. The first of October, 1883, he started a new bee-paper, *Illustrierte Bienenzeitung*, by which he gives to his readers the experiences made in his own large apiary, as well as the most important improvements in apiculture in the wide world. This bee-paper is now one of the best, if not the best, in Germany.

In 1884 he was driven away from his home. His neighbors did not like bees, and Gravenhorst was ordered to remove his. He appealed from court to court, and the German bee-keepers stood nobly by him, helping to pay the expenses; but the lawsuit was lost, and he sold his old home in the city of Braunschweig and moved his bees to Storbeckshof, near the valley of the Elbe.

If we look in his book we will see many engravings which seem strange to us. But if we read the book, and if we know the honey resources of his country, we are bound to say that Gravenhorst's hive and management are not to be surpassed for his locality. His hive is especially adapted for wandering and for quick handling. Many manipulations are done by hives instead of by frames, the same idea represented now by Mr. Heddon, but in quite a different way. The American bee-keeper will be astonished if he sees that Gravenhorst's hive is turned upside down to take out the frames. This is at first a concession to the custom of the heath bee-keeper; but many advantages are gained thereby. Many times we see all we need by a glimpse from below by lifting the hive only a few inches on one side. If the colony builds some drone comb here, we have a sure sign that the swarming fever is commencing. The Heddon and similar invertible hives will show us these advantages by and by. The cover of the hive is tight, and no mat or cloth or quilt is to be removed. This is an advantage, especially in the spring, after a revision has been necessary, because not a bit of the warm air of the hive can escape. The objections against this hive are, that for a short and very good honey-flow it is too small, corresponding to the one story and a half of the Simplicity only. Again, it can't be enlarged, and thereby is not practicable for comb honey in sections.

In his management we find many things quite different from ours. In conformity to the honey-flow and the usage of the heath bee-keepers, Gravenhorst increases his colonies in the spring, and unites again in the fall. He teaches, and has for many years, that swarms should be hived on starters only—an idea which finds advocates now among our best American bee-masters. For this purpose his artificial swarms are quite similar to the natural swarms; and one of his methods of forming artificial swarms is quite similar to Doolittle's method of forming nuclei. This chapter of his book is very interesting. Of importance is the chapter on moving bees from one pasturage to another. This is entirely new for the United States, and we could find no better teacher than Gravenhorst, who for many years has driven his 200 to 600 hives twice every year to another location, and with the best success too. In short, Gravenhorst is original in every respect. His aim is to advance bee-keeping to a pursuit giving a living to the manager, and to systematize the labor. In this respect he has done more than any other bee-keeper in Germany; and we can truly say that Gravenhorst is now the greatest master in *practical* bee-keeping in Germany. His crops of honey are counted by tons—a rare case in Germany.

One point I wish especially to mention, because it gives a glimpse of the character of the man. Many inventors of hives think that their invention only is good, and that all other hives are impracticable. Not so with Gravenhorst. He fully perceives the advantages of other hives, and especially of our Langstroth hive, and his judgment was always impartial. In this respect he is far ahead of a few frivolous enviers who criticised his hive and management a short time ago. In his book he gives descriptions and engravings of different German hives; but we find the Langstroth, Cowan, and the new Heddon hive too. No other German bee-book mentions these or similar hives. The operations and management are described, but he always gives remarks as to how the bee-keeper should proceed with hives of other styles.

The writer of this sketch is not only acquainted with Gravenhorst's hive and management, but he has enjoyed his friendship too for many years, and is glad that the editor of GLEANINGS called on him to sketch the life and acts of this great German bee-master. L. STACHELHAUSEN.

Selma, Texas.

My good friend S., the editor of GLEANINGS is glad too, to think that he has found one of the old-countrymen in our own United States who is conversant with bee-matters in both countries, and able to write so intelligently as you have done on this and many other subjects. Some of the kindest and most friendly letters GLEANINGS has ever received were from friend Gravenhorst. I have been acquainted with the hive described, for quite a good many years. When friend Gravenhorst's first little pamphlet came out, I employed a German teacher to read portions of it to me, translating to me as she read. As she was not very conversant with bees, some funny mistakes occurred in rendering things from German into English, with which she was but little acquainted herself. I did not know until just now, or, at least, it did not occur to me, that Gravenhorst's hive is specially arranged for rapid and safe transportation; and since we know he moves his hives about so much, we can understand better this odd arrangement of a hive that must be rolled over bottom up before the combs can be handled. In closing, I wish to mention the engravings of such wonderful minuteness, accuracy, and beauty as are found in Gravenhorst's book. It is profusely illustrated, and the cuts are certainly a credit to any wood-engraving that has ever appeared, either in this country or any other. It may be well to mention that the engraving of our friend which we give herewith, we had reproduced by photo-engraving. It first appeared in Gravenhorst's journal for Sept., 1884.

NOTES ON DANDRUFF.

A LITTLE COMFORT FOR THE AFFLICTED.

IN GLEANINGS for July 1st you published an interesting article on the skin, from the pen of Prof. Cook. In connection with it you tell us how you are afflicted with dandruff, and you appeal to him for a remedy—if there is any. It was with more than usual interest that I looked for his reply (which appeared Aug. 1st), and I imagine you must have felt somewhat disappointed when you read it. He gave you little if any comfort, and certainly did not tell you of any remedy, or give you any hope of finding one. I trust Prof. C. will pardon me for saying it, but it really seemed to me that his reply bore quite a striking resemblance to the comfort Job received from some of his friends.

I am well aware that Prof. C. is far wiser than I, but it has been said (and I am rather inclined to believe it) that "experience is the best schoolmaster, but the tuition fees are heavy." From what the professor has said, I presume he never attended the dandruff school, and therefore he was deprived of his best teacher—experience. And right there is where I have the advantage of him, for I took a thorough course, though I do not think he has any reason to regret that that branch of his education was neglected.

A number of years ago I was so troubled with dandruff that I considered it a very great affliction. I had very luxuriant hair, for it was unusually long, fine, and thick, so much so that it was impossible for me to comb it with a fine-toothed comb; and when my mother undertook to use that instrument of torture, it not only felt as though she was trying to pull my hair out by the roots, but it made her arm ache worse than to do the family washing. I do not know what caused the dandruff, but I do know that the growth and beauty of my hair was not diminished, and I have never worn a "Derby or stovepipe," nor a stiff hat of any description; so it could not have been caused by any thing of that kind. When I combed my hair, there would be such a shower of dandruff that I always had to put something around my shoulders to protect my dress; and if I did not spread a paper on the floor, and comb my hair over it, the broom and dust-pan had to be called into service, for I was sure to leave my mark. My mother tried various remedies, but they proved to be of little or no benefit, until a friend told us of a remedy which she had used in her family with excellent results. Then with the hope that it might give some relief we gave it a trial, and it proved to be really efficacious. Since that I have ascertained that it is often used by barbers for shampooing. Here is the

RECIPE, WITH DIRECTIONS FOR USE.

Purified carbonate of potash—commonly called salts of tartar, 1 oz.; rain water, one quart; mix thoroughly, and it is ready for use. Apply a few spoonfuls to the head, rubbing and working it in thoroughly; then with clean soft water, and a cloth or sponge, wash the head thoroughly, dry well with a towel, and apply a little pure oil to supply the natural oil which has been washed out. Use once or twice a week until there is a noticeable improvement in the condition of the scalp, then do not use it quite so often. It is very much better to get some person to apply this mixture, and shampoo the head, than for any one to try to do it himself. It is very strong, and one must be careful that it does not get in the eyes.

The carbonate of potash sells for *five cents an ounce;* and as water is free, any one can try this recipe by investing one whole nickel. I have been told that a barber would do at least five dollars' worth of shampooing out of this five cents' worth of material; and if it relieves others from the annoyance and discomfort of dandruff as it did me, they will certainly consider this prescription worth dollars in the comfort it affords.

Ipava, Ills., Sept., 1888. **ANNA B. QUILLIN.**

Many thanks, friend Anna. Your suggestions may help a good many of us, and may be it will relieve our mothers (may be wives) from brushing up after us. I have for years been using powdered borax in the way you suggest, but I will at once try carbonate of potash. I know by experience that many of our druggists will say they haven't any; but if you ask for salts of tartar they will say, "Oh, yes!" at once.

FOLDING SECTIONS.

HOW MANY CAN WE FOLD PER HOUR?

FRIEND ROOT:—In your answer to J. H. Larrabee, p. 692, you say that your girls consider it no difficult task to fold 1000 one-piece sections per *hour*. If it were not for your well-known and undoubted veracity, I should call this a very tall piece of boasting. But perhaps it can be done, when the sections are fresh from the saw, while the wood is still comparatively green and soft, and requires no moistening. I have, however, found a very different rate in my case. If you have memoranda of my orders for several years past, you will see that I have bought thousands of sections from you, and I have folded most of them myself. In the first place, each section has to be gone over, and the fuzzy edge scraped off with a piece of coarse sandpaper tacked to a stick. This, in itself, takes considerable time, and is a very tedious and annoying job, where many thousand pieces have to be handled. Next, it sometimes is several months before I commence folding sections; and to be sure that I have enough, I generally have several crates to carry over to next year. While they are lying unfolded, they become so dry that they require moistening at least twice, sometimes three times, to prevent breaking. Even then, a large proportion will break, no matter how careful I may be. The last year's supply was even worse in this regard than previous lots, the wood being much harder than formerly, which was also evidenced by the increased difficulty with which the ⅜ wire nails were pushed into the broken joint, and was clearly proved by the difference between these sections and a lot of 2000 left over from the previous year, although these latter were over a year old when they were folded. Of last year's sections, in many cases from 25 to 50 per cent of the blanks in a crate would break. Men whom I have hired to fold sections for me have quit in disgust, because they could make no headway with the frequent breakage. Besides this, the sections seldom come out of the section-former square. They have to be squared up by forcing them cornerwise (often causing a break) and dried until they will stay square. If not done now, while the corners are soft, no earthly power can make them square to remain so afterward, as Dr. Miller said not very long ago.

In moistening the sections it will not do to pour water through the crate, as you once recommended, for this would swell the inside of the V-grooves and make matters still worse. Neither will it do to pile the strips on top of each other, for each must be moistened at least twice. I lay about 20 side by side; and after folding half of them I draw the rest up close to the section-former and put 10 new ones in their place, moistening the whole lot each time. In this way all are moistened twice. Before moistening I stamp them. If done afterward, the stamp is apt to be blurred, as the water often will spread considerably, especially when the surface is rough. I have considered myself an expert at folding sections; but the best I could do (without considering the preparatory scraping of the edge) at stamping, moistening, folding, squaring, and mending broken sections (as they happen to break), would be 100 per hour. Hence your statement, when I read it, almost took my breath away. Have you considered all the difficulties—all the *ifs* and *buts*, under which probably many of your customers as well as myself are doing this work? Why, if you can do the work at the rate stated, and furnish the sections with a clean, smooth edge, and perfectly square, it would *almost* pay to order them from you ready made up, even if they had to be shipped around the globe. But, joking aside, I should be glad if I could accomplish one-half of your rate, and should feel thankful if you could tell me how to do it.

Another thing I wish you to look into is this: Many of the sections are not dovetailed deep enough; consequently the joint does not lock together properly, and is more or less projecting, which makes trouble, both in the wide frame and in the shipping-case. There might also be more uniformity in the thickness of the sections. While I appreciate the progress that has been made in the manufacture of sections, still I think there is considerable room for improvement; and as I expect to use thousands of them each year, I hope the improvement may come while I, and not some future generation, am able to benefit by it.

WM. MUTH-RASMUSSEN.

Independence, Cal., Sept. 28, 1888.

Friend M., I was probably as much surprised to find that you can fold only 100 one-piece sections per hour as you were to learn that we thought it no difficult task to fold 1000 in the same time. Perhaps we can discover why it is that there is such a *great* difference in the speed. In the first place, you sandpaper your sections. This we never do. We thought we made them smooth enough—at least, we think we have in later years, to render such work unnecessary. In the second place, we rarely have occasion to moisten the folding corners. The climate of California is very dry —so dry, indeed, that it is not practicable to use barrels or kegs for the storage and shipment of honey, because of the shrinkage of the staves, and this may account for the breaking of your sections. When the sections have been sawed for some time, we occasionally find it necessary to dampen the corners to prevent breaking; but even then our girls can fold even 500 per hour. To make sure that I made no mistake, before I reported I timed one of the women when she was folding sections, and by the watch she turned out 25 per minute. This would make 1500 per hour. This rate is the very best she can do, but she could not, of course, keep it up through the whole hour; but she says she has repeatedly folded 1200 in an hour. To be on the safe side, I thought I should be perfectly within bounds to say that the girls consider it no difficult task to fold 1000 one-piece sections per hour. If you will turn back to the Juvenile Departments in GLEANINGS you will find that the little folks in two or three instances folded at this rate. As a general rule, I believe that a good smart woman can do light work more rapidly than a man. If you have ever been in a match-factory, and have seen the girls put the matches in boxes, and attach the stamps on each package, you have doubtless been greatly surprised at the rapidity with which their hands move. I have seen some girls work so rapidly that it was very difficult indeed to follow their movements. The secret of their speed was, they were working by the piece. Our girls fold sections by the piece. We pay 3 cts. per 100. Your rate of speed, 100 per hour, would fetch you only 30 cts. a day; but if you were folding sections by the piece, perhaps you could make $2.50 per day. Now, friend M., I am inclined to believe that the dryness of your climate has a great deal to do with the breaking of your sections; and while it does not account entirely for the difference in speed, we think it does so very largely.

In addition to what Ernest has said, I would suggest that the bees, if allowed, will clean the fuzzy matter from basswood sections very nicely, and we have been of the opinion that they do it cheaper than the bee-keeper can. Some specimens of basswood lumber, when seasoned just right, and the saws are in excellent trim, will give us sections almost entirely free from this roughness. I think, however, that sections that are a little fuzzy will, as a rule, fold with less danger of breakage, for this very thing indicates that the lumber was not thoroughly seasoned when worked. Perhaps, friend M., you are a little more particular with your sections than bee-keepers are generally. I know very well our dovetailing has not always been done as perfectly as it should be, and we are now arranging our machinery with the view of making it impossible to have the plank go through the machines with defective dovetailing. We are much obliged to you for your hints and criticisms in regard to making sections.

THE CLANDESTINE CUT-WORM MOTH.

ANOTHER TEST OF TRUE HIBERNATION.

I HAVE just received from Mr. T. Rothwell, Austinville, Pa., three dark, almost black moths, which are an inch long, and expand—that is, measure from tip to tip of wings when these are spread—an inch and three quarters. He finds them in his honey-house, and wonders if he should kill them. He adds: "Please tell us of them through GLEANINGS."

These are among our most common cut-worm moths. They are wont to come into our houses, and hide by day behind shutters, curtains, or in any dark place. Hence the specific name, *Clandestina*. It is known to science as *Agrotis Clandestina*. It is so common that everybody who uses his eyes must have seen it over and over again. They usually enter houses in the evening, attracted by the lamplight.

It is lamentable how ignorant some of our well-informed people are in reference to these most common and familiar insects. Thus one of my lady acquaintances, of rare culture, always supposed that these moths, which she often saw in her house, were the clothes, or carpet moth, and so always crushed them at great labor and pains when she saw them. The clothes moth is a very small orange or gray moth, beside which this one is a veritable Jumbo.

While these moths do no injury to the bee-keeper or his products, their immature forms (the larvæ, or caterpillars, so-called cut-worms) (there are several other species of cut-worms) often do immense damage to corn, cabbage, tomatoes, and other garden and field crops. Thus to kill them aids our farmer friends; yet not very greatly, as what we could kill would be only a drop in the bucket.

YELLOW SWALLOW-TAILED BUTTERFLY.

Mr. C. L. Fischer, Crete, Nebraska, sends me the caterpillar of our large yellow swallow-tailed butterfly, *Papiliotumus*. This caterpillar is large at its head end, and tapers toward its opposite extremity. It has eye-like spots near its head, and when disturbed it pushes out quickly some horn-like organs which are really scent organs. If we may judge from the horrible odor which this gives off, we may well regard these scent organs as defensive. The butterflies which will come from these next spring are large yellow species, and are often seen on the lilac-blossoms. The long tail-like projections to their posterior wings make their identification easy. This species illustrates the strange and interesting law of dimorphism—two forms. Though this butterfly is yellow north, as we go south a black form of the same insect is common.

I am surprised to know that this insect feeds on the tulip—let us stop calling tulip "poplar." I have taken it from apple, wild and tame cherry, basswood, and thorn. Now we must add tulip.

Mr. John Burr, of Braceville, Ill., sends a wasp—often called the white-faced hornet. He says he found it in his hive, and he desires to know through GLEANINGS its character. These are our largest paper-making wasps, *Vespa maculata*. Their habits are much the same as those of the still more common yellow-jacket, *Vespa vulgaris*. Both are social, like our bees—that is, live in colonies, and, like our bees, they have queens, workers, and males. They make large, more or less globular paper nests, often more than one foot in diameter. On one side of this is a circular opening, leading to the parallel banks or galleries of hexagonal cells. These nests are usually formed in trees, sometimes under the cornices of buildings, and more rarely in boxes. I have known this white-faced wasp and also the yellow-jacket to build their nests in an unused bee-hive. The yellow-jacket's nest is similar, except that it is smaller and has smaller cells, and is often formed in some underground cavity.

The paper-making wasps cut wood from old trees and boards, and make a pulp of it with which their nests are made. These wasps are like bees in their reproduction. The males come from unimpregnated eggs; and as is the case with the bumble-bees, the fertile female alone survives the winter, and so she has to commence operations alone in early spring. The first brood produces, as in case of bees, only workers; later the drones and queens appear. The larvæ, like those of the honey-bees and bumble-bees, are fed prepared food. I presume this, like the same in bees, is digested food, or chyle. The larvæ are longer than those of bees in their development. The eggs are a week in hatching; the larvæ are feeding for two weeks, and are in the pupæ state a week and a half; so it takes a month or more to develop the workers. How long it takes to develop the queen or drone I know not.

The food of these wasps is very varied. They eat meat from scraps in the butcher-shop, kill and eat flies and other insects, and, as Mr. B. discovered, are not averse to eating honey, for which they often enter the hives of honey-bees. One summer I had a nice colony of yellow-jackets in a bee-hive in my apiary. While I was working with the bees, the wasps would often alight on the frames and sip the honey. They got so used to me that I could push them aside, and could raise the cover from *their* hive, and examine their nest, without disturbing them, or myself receiving harm. I do not think these wasps do any serious harm. I know they kill some of our worst insect-pests, and so do good. Although they have very cruel stings, they will rarely use them unless provoked to do so. A. J. COOK.

Agricultural College, Mich.

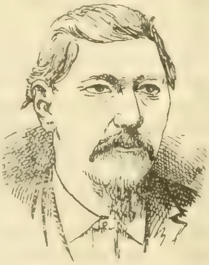
While this study of insects does not always pertain directly to bee culture, it seems to help the bee-keeper to work more intelligently when he becomes acquainted with insects nearly related to honey-bees. In the same way it helps us to work more intelligently when we become acquainted not only with the habits of the bee moth, but also other moths—the cut-worm and even the butterflies. I confess I never knew, until I read it above, that wasps, hornets, and yellow-jackets, have queens, drones, and workers, as do honey-bees. We are to presume, then, that the drone yellow-jackets, like drone bees, can not sting. The next time I tear down a yellow-jacket's nest I am going to look for drones. I suppose the queen wasp and queen yellow-jacket, after once being fertilized, lay eggs that produce workers and queens for a year or more. The only great difference, then, between these insects and the honey-bees is, that the queens hibernate, and thus live over winter without any workers to keep them warm, while the queen bees do not and can not. By the way, friend Cook, haven't I struck on a new distinction between hibernating insects and those that do not hibernate? True hibernation embraces the power of keeping alive through winter, without the assistance of a body of insects to keep up the temperature. I suppose the queen bumble-bee lives safely through the winter, in a temperature even below zero, and this, too, alone by herself, not being inside of a cluster of living insects.

A TEXAS LETTER.

PATENT MOTH-PROOF (?) HIVE; SOME REASONS FOR PUTTING HIVES ON BENCHES, IN THE SOUTH.

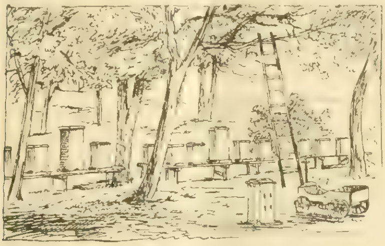
LAST year you and I had a tilt about an advertisement of a honey-extractor. You seemed to doubt my honesty. The consequence was, my advertisement did not appear in GLEANINGS last year. This year I had it inserted two times only, and I am well pleased with the result. My patrons hardly ever asked any questions, but simply sent me the money and told me how to send the machine. I suppose it is because your readers know you don't advertise humbugs.

I was born and raised here in a wild country, 39 years ago; I was a cowboy and farmer, and had 18 months' poor schooling in the English and German languages. I learned the carpenter trade, married at 20, and started a small country store; yes, and the credit system soon nearly bankrupt me. I had to shove the plane and saw alongside of my little store, and begin to invent, and take out patents, with which I have had tolerably good success, so that up to now I have four farms and some city property, besides my business and little home. I inclose you a photograph of myself, rough and ready, as I am at work, with pencil behind my ear.



I send you, also, another photograph of my little apiary, taken about April 10th. I suppose you will say, "Confound these patentees! they will always try to have things different from anybody else, and contrary to rule;" but let me tell you that I am no bee-hive patentee, nor is there any patent hive in the apiary, except the old discarded one you see in the front on the ground. It was claimed to be a moth-proof hive, with a drawer underneath to catch moths; but I don't like it. It raises more moths and ants than any other I have ever seen. I used to have all my hives on the ground, or a few inches only from the ground; but the weeds and grass grow so rank and fast here that it is much trouble to keep them down.

Aside from this, there are more ants, spiders, etc., on the ground; so, two years ago I raised the hives two feet by driving cedar stubs into the ground, 18 inches apart, in pairs, and each pair 9 feet apart. I then nailed a 4-inch plank across the stubs and then a 6-inch plank horizontally over the 4-inch plank. The 4-inch plank keeps the bench plank from sagging under the weight of the hives. My hives on the long bench are only 16 inches apart; and in order to assist the bees in knowing their own hive I painted one hive red, one blue, one white, and so on. Where the hives are all white, alike, it makes some trouble when they stand so close together. I like it much better to have the hives about two feet from the ground, for this country. I think it best to have only three hives on one bench five feet long, for then the bees will easily know whether they belong in the right-hand, left-hand, or middle hive. The benches should be at least ten feet apart.



MELCHER'S APIARY, WITH HIVES RAISED ABOVE THE GROUND.

My frames are 10 x 10 inches. I like this small size better, because I don't need to wire them, and they don't sag like the L., and they are somewhat safer and handier to handle for extracting. I like the looks of the higher hives better than I do the low broad ones; but often we must make mine 3-story high, and then they look rather slim, 13 x 13½, and 38 inches high outside. Each story consists of 8 frames, so that the lower story is just about right for brood. No honey is taken out of the lower story.

I use a flat cover of double plank, with no cloth over the top of the frames. I leave a bee-space of ½ inch between the top frames and the cover. For the entrance I prefer a slot ¾ inch broad and ¼ inch high, 5 in number, to the longer and wider entrances, because the wind often blows grass or leaves into them, and then the bees have much trouble in getting it out, and in the winter the wind can not blow so fiercely into the small entrances.

O'Quinn, Texas. J. C. MELCHER.

Well done, friend M. Even though the editor of GLEANINGS did sit down a little on your first honey-extractor, it seems that it had the effect of inducing you to improve it considerably. But haven't you done a rash thing in coming out in this manner in print? Some one who has bought an extractor of you may make a report that you won't like. If, however, you are ready to tell them to come on with their reports, good or bad, I admire your courage and decision. I do not believe your little hive, with frames 10 x 10, will compare favorably with the Langstroth frame for comb honey. If I were you, instead of running them up three stories high I would put one story in front of the other, then you would have room for surplus boxes on the upper side, to hold a crate 10 x 20 inches. You can do this and still keep your small comb. In fact, something of the kind has been done already, as you will notice by our back volumes. Instead, however, of starting a hive of different dimensions from that of anybody else, why not adopt the Gallup frame, 11¼ x 11¼?

PREPARING COLONIES FOR WINTER IN SOUTHERN MISSOURI.

NO CHAFF PACKING OR CELLAR NEEDED.

READER, first turn to page 570, present volume of GLEANINGS, and read my note on wintering in the South. That little note has called for this one, and they are both freely given, for I have, for years past, observed, by reading our bee-literature, that many beginners in our latitude, and further south, often incur much unnecessary expense in preparation for wintering, and particularly so when we at present need to economize on account of our business not paying us a profit.

I use the L. hive and frame, ten frames to the story. I prefer this to the L. 8-frame hive. I produce extracted honey, and can have more honey left in the brood-chamber at the end of the season for wintering than I would have with a less number of frames. My hives are set slanting from rear to front, and the entrance the whole width of hive is generally left open. This gives the bees a chance to clear out all accumulating matter every warm day that comes. In September or October I go through them, punch a ½ or ¾ inch hole through every comb. This hole should be nearly in the center of the comb; if any variation, rather above the center of the comb. If brood is not already in the middle of the brood-chamber, I move it in the middle, with the combs also that contain most empty cells in their center put next to the brood-nest. I leave the combs that are full of honey on each outside next the walls of the hive. See that there is plenty of honey. I seldom have so much but that they use it all next spring in rearing young bees before the honey harvest comes. I should like to have bees enough to cover six or more combs on cold frosty mornings. If there are not enough bees, I double up the weak colonies, or else contract their space down to four or five frames, nuclei style, and then toward spring I see that they have sufficient honey. I then cover with a tight honey-board or quilt, just such as we use in summer. It is very seldom here that we have continued cold weather so that bees can not have a good fly out, inside of 21 days, during our hardest winters.

By having good queens, and being crowded with bees, I winter three and four frame nuclei with perfect success. I prefer to have them in the south part of the hive. They get more advantage of sunshine. E. LISTON.

Virgil City, Mo., Aug 30, 1888.

Friend L., we are well aware that you can, without doubt, winter well in single-walled hives in your locality; but inasmuch as you often have very severe weather during the winter, and sometimes severe cold winds late in the spring, I think if you try chaff hives side by side with your single-walled hives, you will find they will average better. A colony may come through in fair condition; but if the use of the chaff hive would bring them through in extra condition, would it not prove a good investment? With us, even during the honey-flow, we have many days and nights so cool that the bees stop building comb, except where surplus receptacles are protected by chaff packing or some extra outer covering. I agree with you in regard to having an abundance of stores to carry the bees safely through brood-rearing in spring. A great many times, when I have thought there were more stores than they could possibly make use of, by the time the honey-flow commenced these stores would be about all gone, and in place of them we would have young bees boiling out of the hive in every direction.

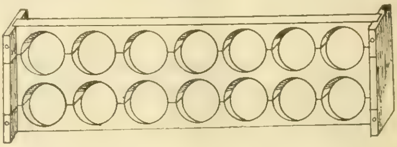
THE HARMER TWO OUNCE SECTION.

THE RAMBLER'S EXPERIENCE WITH THEM.

WHEN the editor of GLEANINGS spread before its readers a description of Bro. Harmer's little five-cent package, the Rambler commenced to figure. The more he thought about the matter, the greater seemed the bonanza before him. For instance, if I should run one hundred swarms and get two full cases, or 50 lbs. per colony, there would be 40,000 packages at 5 cents each, or $2000. Of course, it would be a bonanza. I sent for a sample frame, and thought at first to get out material, crates, etc., for the whole 40,000; but our water-power being frozen up, I started in with much *eclat*, with experiments. I first made ten frames, or enough for one crate, to hold 200 sections. Next the veneers were successfully made; then they were cut into little bits, and here methought of a grand plan for making a large lot real fast—just run the veneers through a straw-cutter. When I had filled a frame with little pieces (and it seemed as though there were a thousand of them) for 20 sections, I unanimously decided that 30,000 would be all I could make without machinery. Then I borrowed from the housekeeper a large darning-needle and commenced to glue the corners. At first the glue was too thin, and ran down into the form. I thickened it and proceeded again. Some of the little pieces were too short, and the glue ran between them; then the darning-needle got a big lump on the end of it, and I broke right out with "Darn the darning-needle," and thereupon concluded to make only 10,000 of the "darn" things. Then I went to the postoffice. The next day, just after dinner, when I felt well, I tackled another frame. Just as I had got ten glued, a friend came in, but I was so absorbed that the first consciousness of his presence was an irreverent remark of his about my tongue sticking out, and I resolved to make only 5000 of the little sections.

I was called away, and it was several days before I got to work again; and when I had got eight frames filled I thought probably 1000 would be all I could sell at our county fair. A day or two after I finished the case of 200, and found my tongue exposure, while gluing the corners of the sections, had resulted in a sore throat, and I soberly concluded that one case was all I could possibly dispose of. But while puttering with the little squares I was very busy devising something more rapid and the result was a round section. If saw-cuts are made in a board a proper distance apart, the shavings will come off already rolled up into little hoops. Now get a $\frac{7}{8}$-inch board just the length and depth of your brood-frame, and bore, with an extension bit, holes $2\frac{5}{16}$ in diameter. Into these holes fit the little hoops, with a drop of glue between the lapping ends; then a circular piece of foundation, or, better, Weed's full-depth-cell honey-comb.

The frame I use holds 14 of these little sections; and after boring the holes, each form is sawn in two in the center. This enables us to open the form and pick out the sections easily. The frame is easily adjusted anywhere in the bee-hive between brood-combs or extracting-combs, and are filled quicker and more evenly than if put in a crate all together. The Harmer sections were badly bulged in my apiary; but the season has not been a fair one for a thorough test, as we have but little honey, and slow work in larger sections. I give my invention to the fraternity, and hope they will have success in producing thousands of two-ounce sections.



RAMBLER'S CIRCULAR TWO-OUNCE HONEY-PACKAGE.

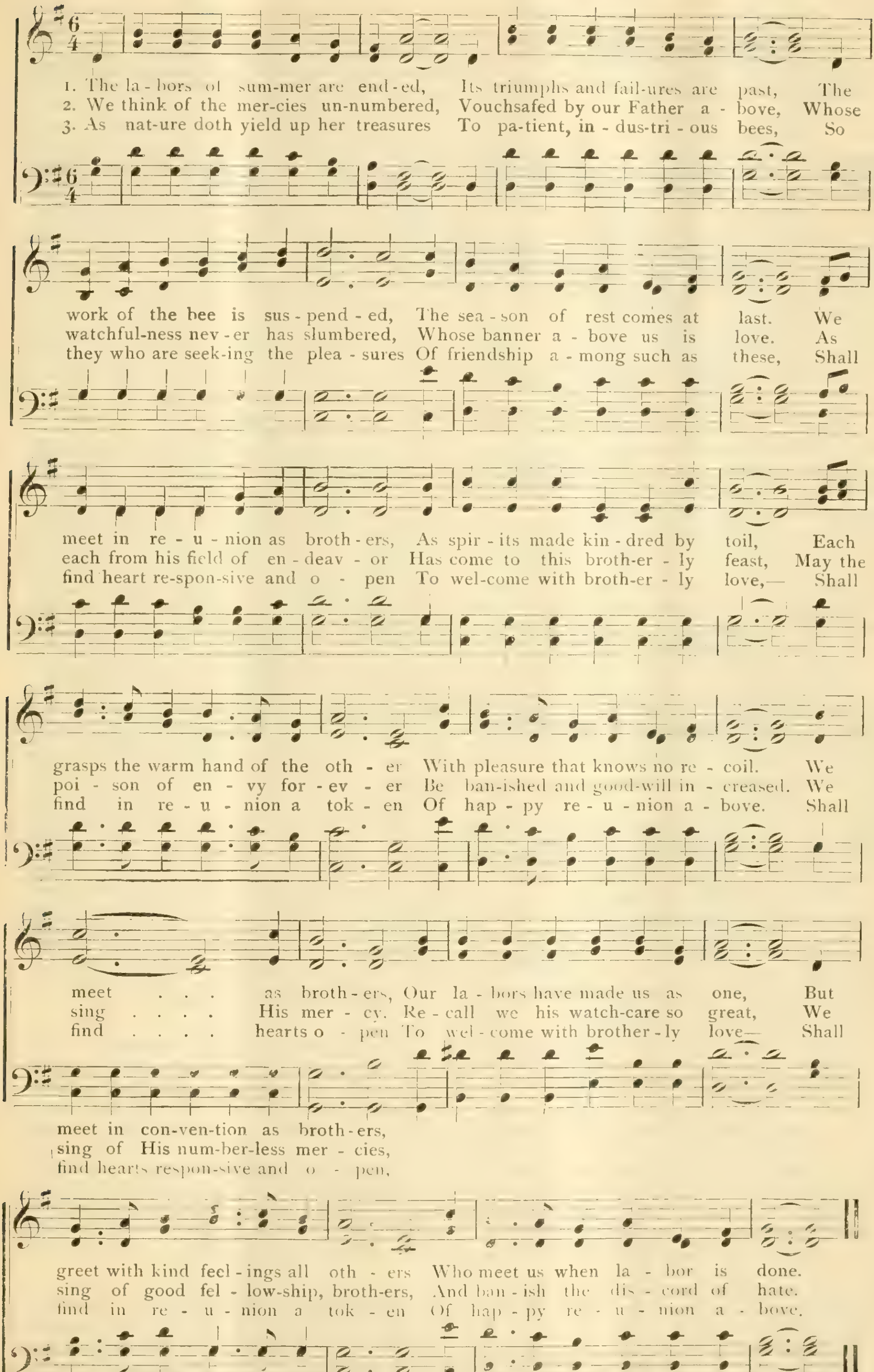
THE RAMBLER.

Friend R., your experience with small sections is very similar to ours. We started out to fill with these sections, frames for two upper stories. The veneer was all nicely cut on the separator machine, and the form was made as per directions; but it took one of our best men a day and a half to fill twenty frames with these small sections, and finally he begged to be excused from doing any more of that kind of work, that showed so little in results. Several times the frames of sections stuck to the form, and the process of removing caused the breaking of the sections. With us, filling the frame with the Harmer sections is a slow job; and not the least of the difficulties is the insertion of foundation in the individual section. No doubt friend Harmer can fill the frames with economy of time; but certain it is, our man did not succeed in doing so. We tried one or two frames ourselves with scarcely any better results. In the apiary the bees showed a decided aversion to them; perhaps because flat-bottomed foundation was used. Our very poor yield of honey, however, was probably the principal cause of the sections not being filled out more promptly and in better shape. Without having tried your plan of circular sections, we should say you have hit the right thing. It is quite ingenious, and it seems as if it would save considerable time in preparing the section. We should be glad to know whether you have succeeded in having these little circles filled with honey, and how it compared with the Harmer method.

Eugene Secor.

BEE KEEPER'S REUNION SONG.

C. C. Miller.


1. The la - bors of sum-mer are end-ed, Its triumphs and fail-ures are past, The
2. We think of the mer-cies un-numbered, Vouchsafed by our Father a - bove, Whose
3. As nat-ure doth yield up her treasures To pa-tient, in - dus-tri - ous bees, So
work of the bee is sus - pend - ed, The sea - son of rest comes at last. We
watchful-ness nev - er has slumbered, Whose banner a - bove us is love. As
they who are seek-ing the plea - sures Of friendship a - mong such as these, Shall
meet in re - u - nion as broth - ers, As spir - its made kin - dred by toil, Each
each from his field of en - deav - or Has come to this broth-er - ly feast, May the
find heart re-spon-sive and o - pen To wel-come with broth-er - ly love,— Shall
grasps the warm hand of the oth - er With pleasure that knows no re - coil. We
poi - son of en - vy for - ev - er Be ban-ished and good-will in - creased. We
find in re - u - nion a tok - en Of hap - py re - u - nion a - bove. Shall
meet . . . as broth - ers, Our la - bors have made us as one, But
sing . . . . His mer - cy. Re - call we his watch-care so great, We
find . . . . hearts o - pen To wel - come with brother - ly love— Shall
meet in con-ven-tion as broth - ers,
sing of His num-ber-less mer - cies,
find hearts respon-sive and o - pen,
greet with kind feel - ings all oth - ers Who meet us when la - bor is done.
sing of good fel - low-ship, broth-ers, And ban - ish the dis - cord of hate.
find in re - u - nion a tok - en Of hap - py re - u - nion a - bove.

HEADS OF GRAIN

FROM DIFFERENT FIELDS.

THE CARDINAL FLOWER.

MR. ROOT:—You will remember that our friend President Geo. E. Hilton had some very fine honey at the Saginaw meeting of our Michigan Association last December. He told me that the honey was from the Indian pink. From his description I supposed the plant was the great willow herb, *Epilobium Angustifolium*, which is beautifully illustrated in the new edition of my Manual, page 380. I thought this because I knew that this plant often abounds in profusion in our northern counties, that the honey from it is white and delicious, and that Mr. Case, of Petosky, and the Wilkins sisters, of St. Clare Co., had received bountiful harvests from this source.

To-day I received from Mr. Hilton the "Indian pink," as he calls it, and lo! it is our beautiful cardinal flower, *Lobelia Cardinalis*. I am rather surprised to find that the beautiful honey is from the cardinal flower, as that is a not very rare flower in this region, and I rarely have seen bees about it, though the more common blue, *Lobelia Kalmii*, I have seen visited by bees. Here, then, we have another valuable honey-plant; and this plant is doubly welcome. It is handsome *per se*, and handsome in accomplishment. A. J. COOK.

Agricultural College, Mich.

Friend Cook, can't you tell us where we can find a picture of *Lobelia Cardinalis?* When you pronounced that honey from willow-herb, at the Saginaw meeting, I felt at the time a little undecided about it. If bees visit the common lobelia, I should have more faith in that honey as a remedy for distressing coughs than any hoarhound or any thing else. If any of the friends can give me some lobelia honey that has lobelia enough about it to produce sickness at the stomach, as lobelia does, I will give 25 cts. a pound for it. Now, I do not want some ordinary honey with lobelia tincture added. I want nature's genuine product; and if what I ask for can be furnished, may be I shall go into the medicine-business. I feel a very great friendship for the common blue lobelia—the kind that nauseates by chewing the pods. If anybody has a cough on his lungs that keeps him awake nights, I think lobelia will give him rest; at least it did your humble servant, when he was a very small boy.

A QUEEN WHICH CAN NOT DEPOSIT EGGS.

I see something said in Sept. 1st GLEANINGS about supersedure. I received a queen from J. T. Wilson that laid right along, but could not deposit her eggs. I have seen her with a pile or bunch of eggs on top of her, the bees following and taking them off. She seemed to have power to lay, but none to deposit; yet she kept her colony up pretty well, and for the past six weeks or more she has had a daughter helping her, and the two are still at work, and have a fine hive full of nice yellow bees. I have seen the two within one inch, laying. One seemed not to care for the presence of the other.

Cumberland, O., Sept. 29, 1888. J. H. DANIEL.

You have furnished us a very important fact, friend D. Although you do not say so directly, we are led to suppose that the strength of the colony was kept up by the eggs which the worker-bees took from the queen and deposited in the cells. No wonder they decided to have another queen reared to help her mother, for it must have taken a deal of traveling to take these eggs and carry them from cell to cell. One can imagine that, during the height of the brood-rearing season, they were obliged to sit up nights to take care of the eggs, and see that none were lost.

IS PROXIMITY TO SALT WATER DETRIMENTAL TO THE FLAVOR OF HONEY?

The inclosed item I clipped from the New York *World*. Can you let us know if the statement is true? THOS. ROTHWELL.

Austinville, Pa., Sept. 18, 1888.

A SINGULAR EXPERIENCE WITH BEES.

Geo. O. Lincoln, Orange Farm, La.—Having read in your paper an article from O. Barrows, Marshalltown, Ia., relating his "experience in placing bee-hives," without taking up too much of your space I will give him some of my experience with bees. I am on an orange grove of 12,000 bearing trees, whose crop annually sells in the blossom for $20,000. Some years ago the owners of this place conceived the idea of turning the sweets of the blossoms of these 12,000 orange-trees into dollars by means of bees. They secured 200 colonies of Italian bees at a cost of $2,000. The hives used were the movable-frame "Dixie hive." Now, this place is right on the bank of the Mississippi River, with fresh water within 100 yards from where the hives were placed. In the rear, five miles distant, is the salt water of the Mexican Gulf. The first season the honey was all that could be desired, having the flavor and odor of orange-blossoms; but the year following, and until the bee-business was given up as a miserable failure, the honey made by these bees was salt, and by analysis gave one pound of salt to the gallon of honey, and was totally unfit for use of any kind. These bees had the best care and attention. Can Mr. Barrows tell me why our bees left the fresh, pure river water and used the salt water five miles away, when the river was at their doors?

Our impression is that there is no truth at all in the statement. Were it so, we think we should have heard of it before. Can anybody tell us if there is such a place as Orange Farm in Louisiana? Bees are fond of salt, as almost everybody knows; but that bees should gather salt to such an extent as to make it appear in honey, I can hardly believe without better testimony.

CARNIOLANS AND OPEN-SIDED SECTIONS.

As there has been a great deal asked about the Carniolans, I will give my experience with them. I purchased of Dr. Morrison, of Oxford, Pa., in July, one untested queen, and gave her to a weak colony of Italians. At present writing her hive is full of nice large steel-colored bees. As to disposition, I think they are all that can be desired. I do not use smoke in handling them, and have not been stung by one of them. I consider them a valuable improvement in the bee-family.

OPEN SECTIONS.

I began using them last season, and was so much pleased with the result that I would not think of using any other. They do away entirely with dividers, and I am *certain* that it is a great saving of time to the bees to have free passage through the section-case in all directions. I agree with Byron Walker in regard to having only three entrances in the end tiers. I should like those who have not already done so to give them a trial, and I think they would be convinced that the open-sided sections are *the* sections for large returns. I have taken about 500 sections of honey this season at present writing, and have not had a dozen bulged combs. Give them a trial. W. M. ALLEN.

Trempeleau, Wis., Sept. 26, 1888.

I believe it is a fact that bees build truer combs, and fasten them better to sections where there are openings on all four sides. The matter was pretty thoroughly discussed at Columbus, and Dr. Tinker and others took the ground you have taken. A lot of comb honey was examined at the centennial exhibit, part of it stored in open-side sections, and part of it where only the tops and bottoms were open. Owing to the poorness of the season, neither kind was filled very nicely; but I thought there was a difference in favor of the open sides.

SHALL THE TOP BOXES BE LEFT ON DURING WINTER IN THE SOUTH?—GALLON OR POUND, WHICH?

Is it best or not to leave the top boxes on hives all winter in the South? I think best to leave them on. I see that liquid honey is quoted by the dealers by the pound and not by the gallon. Ten pounds is a gallon, as I understand it. Is it sold in that way? Dealers in the South want it by measure, and producers will please answer. J. W. PARK.

Columbia, Tex., Aug. 27, 1888.

Friend P., a great number of reports some years ago indicated pretty conclusively that leaving the honey-receptacles over the brood-chamber undisturbed is a pretty good way of fixing bees for winter. It seems to allow abundant upward ventilation; but reports seem to say not too much. I do not remember now whether or not these reports came from extreme northern localities, but my impression is that they did. See the next item after this one. If your honey weighs only 10 lbs. to the gallon, I should say it is not thoroughly ripened. Good honey or maple syrup should weigh fully 11 lbs.; and I think we have had some honey that, in cold weather, would run nearly if not quite 12 lbs. to the gallon.

LEAVING THE SECTIONS ON DURING WINTER.

I noticed in GLEANINGS for Apr. 1, 1881, page 171, that a few bees had been known to winter exceedingly well where the sections had been left on all winter. There were 33 colonies, about two miles east of my place, put into winter quarters last winter with their entire gatherings for the season. They wintered with the least per cent of loss, and have more bees and more business to the square inch to-day than any other apiary in the county.

ISAAC T. GOULD.

Corunna, Mich., June 11, 1888.

FRIEND WALKER REPLIES IN REGARD TO THE ADJUSTABLE SIDE-OPENING CASE.

I wish to say, with regard to your criticism on my super and clamping arrangement for sections, that the objection you mention, arising from the shrinkage of the sections in width, is a purely imaginary one where the timber is *properly* seasoned, as I have proved to my entire satisfaction during several very dry seasons. The sections can be removed more quickly and handily from my super than they can from any super requiring the aid of a follower for the purpose; and when removed they are right side up, and the edges of but few sections require scraping on account of propolis.

Capac, Mich. BYRON WALKER.

Friend W., we can't quite agree that our objection was "purely imaginary" when we had the proof of the actual shrinkage of sections right before us—sections from planks that had been well seasoned. But perhaps practically this difficulty does not make so much difference with the open-side cases. Perhaps you can remove sections faster from your arrangement than from the T super. But the sections from the latter, even if the follower be used, always come out right side up, and not upside down, as you seem to infer.

THE CHAFF DIVISION-BOARD AND THE SIMPLICITY BEVEL.

How are the chaff or wood division-boards made to fit the bevel at the bottom of a Simplicity hive, so that no bee can go around the corner of the division-board? In requeening a hive after a swarm issues, must the queen be caged, and must queen-cells be destroyed? and if not caged, must they be destroyed? Which is best—a chaff or a wood division-board for contracting the brood-chamber to secure comb honey? Would the Simplicity hive, used as the inside of a chaff hive, be as good as an inside made of thinner lumber?

East Sidney, N. Y. LESTER JUDSON.

The chaff and plain division-boards are not made to fit the bevel inside the Simplicity hive-body. Indeed, it is not necessary. If the bees do go on the other side it will do no harm, and many think it is a great advantage, on account of feeding in the outside of the division-board, for the bees can readily pass around these corners to their feed.—In contracting we use and recommend an ordinary chaff division-board. Put one of these on each side of the brood-nest, and it will usually be sufficient.—To "requeen" a hive after removing the old one, it is best to cage the new one according to the Peet plan. All queen-cells in either case should be destroyed. The Simplicity hive, used as the inside of a chaff hive, would work satisfactorily. Our reason for using ⅜ lumber is because it is a great deal cheaper.

INTRODUCING FERTILE QUEENS INTO A FERTILE-WORKER COLONY NOT ADVISABLE.

Will a colony of bees having a fertile worker rear a queen from eggs furnished them? If they rear a queen, will the bees kill the fertile worker? Is there any practicable way to prevent a colony from rearing such a useless force of drones? Is it necessary to cut out the drone comb and fit worker comb in place of it? EMMA E. COLE.

Delta, Colorado, Aug. 30, 1888.

The introduction of a queen into a hive containing fertile workers will probably result in the loss of the queen. A colony so affected had better be scattered through other strong colonies. It is a difficult matter to get such a one to accept a queen or queen-cell. You speak in your letter as though there were only one fertile worker.

It has been pretty well proven that there are several in a hive. If such a colony be divided into three nuclei, each of the three will continue to show evidences of laying workers. If you wish to restrict the number of drones in a hive, use nothing but worker comb. You can cut out the drone-cell in the combs and insert worker if you like, but it would be rather expensive with a large number, and perhaps unnecessary.

REPORTS DISCOURAGING.

ONE WHO HAS NOT MADE A FORTUNE AT BEE-KEEPING; WANTS TO SELL OUT.

I AM somewhat discouraged in the bee-business. I commenced three years ago with five colonies, which I bought for $20, thinking I could make a fortune in a few years. My stock increased double the first year, and I thought I was doing first rate in that line. But I never got any honey. I brought them through the winter and spring successfully. Now, thought I, I shall make it this year. In time they commenced to swarm excessively. My stock increased, and some took to the woods. The spring passed off with no honey, and none in the latter part of summer. They then commenced to swarm again. My hopes were for fall honey; but it was too dry and no honey, though my stock went into winter quarters in good condition, and I thought I should surely make it next year. The spring of 1888 came, and they commenced to swarm again, and have been swarming all the year. We have still no honey of any consequence, yet I have 30 odd colonies in good condition, and am out nearly $100 for bees and supplies. If I had a family it would break me up; but I am a batchelor, and I suppose I can stand it. But I am getting discouraged, and want to sell out. The honey is what I am after now, and not so many bees. S. A. KIERSEY.

Fort Smith, Ark., Sept. 10, 1888.

Friend K., from your own statement I feel pretty certain that our expert honey-raisers would go into your locality and get a big crop. Your bees would not swarm unless they gathered honey; and most of our veterans would, under such circumstances, manage to repress swarming by some means or other; and I think you yourself will very soon get the upper hand if you do not get discouraged and sell out. I never knew the time when bees swarmed excessively when I could not get honey by good management.

This has been the poorest season I ever knew for honey and swarms. Lots of bees will die this winter unless fed. What little honey we got was strong and dark. CHARLES E. HARDESTY.

Connotton, O., Sept. 27, 1888.

DISGUSTED WITH BEE-KEEPING.

Please don't send GLEANINGS. I am disgusted with the whole bee-business. I have spent four times as much money as I ever made out of it, and I can't afford to spend any more. L. G. YEAGER.

La Fayette, Ind., Sept. 4, 1888.

Very likely, friend Y., it may be best for you to give up bee-keeping; but please bear in mind, that this life gives us many experiences just like yours in almost every industry or undertaking. How many are there who have gone into farming with just about the same result? Gardening, small-fruit raising, poultry-keeping, and, in fact, almost any industry dependent on the markets, the weather, etc., are liable to give just such results; and this is why it behooves us to commence first on a small scale, enlarging as we acquire experience and ability.

A HEAVY HURRICANE IN CUBA, AND ITS EFFECTS.

A heavy hurricane passed over this part of Cuba the night of Sept. 4th. Four out of ten of our bee-sheds were blown down. These aggregated about 200 feet in length and 12 feet wide, and were covered with heavy tile. About 20 hives were so badly splintered and broken that nothing could be saved from them but kindling-wood and wax. About 30 others were overturned and more or less broken; and although they lay under the debris from 36 to 60 hours, fully exposed to robbers, yet the most of them have been saved so far. Mr. Dussaq's direct loss will be hundreds of dollars, and the entire apiary more or less injured at a critical time of year.

Havana, Cuba, Sept. 15, 1888. O. O. POPPLETON.

And so, friend P., even if you are exempt from frost and snow you are subject to hurricanes; and even in Cuba, where flowers bloom the year round, bees are sometimes guilty of robbing, as well as with us.

REPORTS ENCOURAGING.

ANOTHER BASSWOOD BELT IN MINNESOTA, ETC.

I HAVE noticed the difference there is in localities in regard to the honey-flow—some encouraging and some discouraging reports, while here in cold, frozen Northwest Minnesota we have had a good fair yield of honey the past three years that I have been keeping bees. It seems to me we are blest with about as many different honey-plants as any locality I know of. About the first that bees work on is willow and soft maple. Early in May the dandelions commence to bloom; pastures and roadsides are covered with these yellow flowers. Next, but not least, comes white clover, which usually commences to bloom about the first of June. There is no place that I have seen that will equal it. It usually lasts till basswood is over. This we have here in abundance. It blooms from the 1st to the 10th of July, lasting from 7 to 10 days. Talk about the great basswood region of Wisconsin! I believe the great basswood belt of Minnesota, known as the "Big Woods," is equally good. It densely covers nearly four counties. F. B. JONES.

Howard, Min., Sept. 7, 1888.

HONEY FROM CUCUMBER.

We have 500 lbs., mostly cucumber, capped honey, that is fine; 300 lbs. of extracted. SYKES & SON.

Pinckney, Mich., Sept. 28, 1888.

My bees are strong, and are making "lots" of honey now. T. H. KLOER.

Terre Haute, Ind., Sept. 13, 1888.

ENCOURAGING FROM ALEXANDER FIDDES, THE INVENTOR OF THE ONE-PIECE SECTION.

My bees are booming. I got over 2000 lbs. in sections since the 20th of August, and still booming.

Centralia, Ill., Sept. 20, 1888. A. FIDDES.

I obtained a good crop of honey this year. The amount was 7000 lbs. **WM. M. STREADER.**

Millwood, Va.

I had 19 colonies, spring count, and I have 43 now; plenty of honey. I have sold some honey at 15 cts. per lb. **J. W. TAYLOR.**

Ozan, Ark., Sept. 26, 1888.

56 LBS. PER COLONY.

Honey crop on the average was good. I think the main harvest is over. I have taken off 56 lbs. per hive so far, and could have secured more, but was short of section supers at the proper time.

Emmons, Kan., Sept. 24, 1888. **THOS. B. EVANS.**

HONEY FROM THE POLYGONUM.

I had 20 colonies, spring count. I obtained 20 gallons of extracted, and 100 lbs. of comb (linden) honey, and 100 gallons of polygonum extracted, and I don't know yet how much section honey from the polygonum. **DANIEL E. ROBBINS.**

Payson, Ill., Sept. 24, 1888.

HONEY CROP UNUSALLY LARGE AND NICE.

My honey crop this year is unusually large, and of fine quality. I gathered in June and July not less than 700 lbs., about half comb and half extracted honey, from 8 colonies, spring count. These were increased by natural swarming to 14 colonies. My honey is chiefly white clover, though I think tulip, poplar, basswood, and sumac contributed to it somewhat, but it is all very white and attractive.

Media, Pa., Sept. 15, 1888. **F. M. POTTS.**

FROM DISCOURAGING TO ENCOURAGING.

I started in the spring with 26 stocks. Some were weak, and some *very* weak. In the fore part of the season they seemed to devote all their time to brood-rearing and swarming. I had but little surplus from white clover and linn, and had concluded our cake would be dough again this season. I had fixed in my mind a rest for September, when all at once the boom came. I had to go to work and "turn up my spoon." Result, 56 hives, all in good condition to go into winter quarters. Honey is stacked around in different places and shapes, which "she" says is better this season than it has been for years.

Garden Grove, Ia., Sept. 28, 1888. **LEWIS M. KOB.**

NOTES AND QUERIES.

THE GREAT STORM OF LOUISIANA.

THE decennial storm of Aug. 29th injured our young queens somewhat. Perhaps 100 were lost that were to be tested for spring. These decennial storms occurred as follows: Aug. 10, 1856; Sept. 28, 1867; Sept. 1, 1879; Aug. 29, 1888. They are always *fearful*, doing great damage to crops, etc. The cotton is half destroyed. Cane is flat and corn is ruined. There is rain daily—not rain, but *floods* of water. **J. W. K. SHAW & CO.**

Loreauville, La., Sept. 6, 1888.

[I am inclined to think these storms occur just about so often, rather by accident than because there is any thing periodical about it. Did you not have many other storms pretty nearly as bad, aside from those you have mentioned during those thirty years?]

SCRAPING SECTIONS.

The best way to clean sections is in the case, if they fit the case as tight as they should.

Rio Sta., Va., July 27, 1888. **JOS. GRIFFIN.**

THAT BEE.

About that bee that visited 204 blossoms of clover before he got a load, you asked me if I was sure he hadn't visited some before I had seen him. I am pretty sure he hadn't.—It has been the poorest honey season here that I have ever seen.

CALVIN C. PHELPS.

East Windsor Hill, Conn., Sept. 18, 1888.

MORE ABOUT THE GRASSHOPPER BEE-EATER.

Yes, grasshoppers do eat bees, for I saw one eat a whole bee. The grasshopper stood on the hive near the entrance until it had eaten the bee. Whether dead or alive when the grasshopper commenced, I can not tell. **JOSEPH MASON.**

Wallace, De Kalb Co., Ill.

[I think Prof. Cook will have to take care of that grasshopper. It is rather out of our line, and I think the grasshopper was certainly "out of order."]

DRONE COMB FOR STORAGE.

What makes bees build drone comb in the section honey-boxes? I have about 500 sections that were built with drone comb in the last ten days.

Liberty, Mo., Sept. 1, 1888. **S. W. WHITE.**

[Bees are apt to build drone comb when the inflow of nectar seems to be greater than their capacity for comb-building. The drone-cell is the natural cell for storage, and unless we use worker foundation they oftentimes run to the drone. Most bee-keepers prefer to have section honey built in worker-cells.]

EARLY AND LATE MADE COMB.

Why is the comb made during the last half of the honey-flow so much heavier than that made the first of the season? There is a marked difference. I mean suprlus comb. **J. A. GOLDEN.**

Reviersville, O., Aug. 14, 1888.

[Friend G., I had never thought of this matter until you suggested it; but I believe you are right, that the bees build heavier combs—that is, they use more wax late in the fall than in June and July. I can give no reason unless it is that the cooler weather makes it more difficult for them to draw the comb out thin.]

A FLAT, OR V-SHAPE TOP-BAR FOR BROOD-FRAMES —WHICH?

Which is preferred in brood-frames, as a rule, by the majority of bee-keepers—those with flat top-bar, or those having triangular top-bar? I have seen some trouble this summer here with frames having a flat top-bar, owing to their breaking down when filled very heavily. In such cases the top-bar sags down, and at last the comb breaks loose.

Dallas, Tex., Aug. 11, 1888. **A. BRANSHAW.**

[No doubt, friend B., the V-shaped guide adds strength to the top-bar; but it occupies a good deal of valuable space that might better be devoted to the storage of honey or to brood-rearing. Where the combs are wired, as a great part of those that are used are now made, there is no sagging of the top-bar, unless the diagonal wires are broken.]

CHLORAL AS A REMEDY FOR BEE-STINGS.

We copy the following from the Cincinnati *Enquirer:*

MONTPELIER, IND., Sept. 28.—A fifteen-year-old son of James Alexander, nine miles north-west of this place, was stung by a bee. A short time afterward he went to Poneto, three miles west. When the boy got to town the sting hurt him so that he went to a doctor, who administered chloral, seemingly without effect, until five doses had been given, when the youth dropped off the chair on which he had been sitting, and expired in a short time.

[There, friends, I think you can see pretty clearly that my advice of letting a bee-sting alone would have saved a life in at least one case. Think of killing a child with chloral because the pain of the sting was hard to bear for a little time!]

OUR QUESTION-BOX,

With Replies from our best Authorities on Bees.

All queries sent in for this department should be briefly stated, and free from any possible ambiguity. The question or questions should be written upon a separate slip of paper, and marked, "For Our Question-Box."

QUESTION NO. 82.—*(a) Describe briefly your method of making winter food for bees. (b) What proportion of water to sugar have you found best?*

See No. 83. G. M. DOOLITTLE.

I never used any thing but honey for winter food. E. FRANCE.

One pound of water to two of sugar. Bring to a boil. P. H. ELWOOD.

I endeavor to have them supplied with natural stores. MRS. L. HARRISON.

One part of water to two of sugar, either by weight or measure. Heat until dissolved. H. R. BOARDMAN.

Boil one gallon of water, and then stir in two gallons of sugar and a quart of extracted honey. A. J. COOK.

About a pint of water to a pound of sugar, or about 25 per cent of water added to good extracted honey. CHAS. F. MUTH.

We use best granulated sugar with about 5 lbs. of water to 10 lbs. of sugar, and add 10 to 20 % of honey. DADANT & SON.

One part of water to two parts of granulated sugar. Melt by a gentle heat, and add about a teaspoonful of cream of tartar to each 2 pounds of sugar. PAUL L. VIALLON.

Take 3¼ lbs. of water; bring to a boil, and stir in ten pounds of granulated sugar. Add one teaspoonful of tartaric acid, dissolved; bring to a boil again and feed as soon as cool enough. JAMES A. GREEN.

I made a tank, or strong box, to contain 2 bbls., with a close cover, and a faucet at the bottom. Into this tank I empty 1 bbl. of A or C sugar. Pour over it ½ bbl. of boiling water, and stir well with a hoe. R. WILKIN.

For winter food for bees I use granulated sugar. Though I have done a good deal of feeding, I can not give the exact proportion. I always gauge the quality by the advance of the season, using slightly thinner syrup if I feed early, and thicker if I feed late. GEO. GRIMM.

a. I'm not sure but I prefer the way I'm doing this year, taking combs of honey from the fullest and giving to others. Otherwise, slowly stir 20 lbs. granulated sugar into 4 qts. boiling water, and when dissolved add an even teaspoonful of tartaric acid previously dissolved in a little water. b. One quart of water to 5 lbs. of sugar. C. C. MILLER.

I have never fed a pound of sugar syrup for winter stores in my life, and can not answer any of the questions from 82 to 85 inclusive. My brother, who has charge of my apiary in Iowa, was forced to feed syrup largely last season, and he reports to me that the colonies wintered on honey did better than those wintered on sugar syrup. O. O. POPPLETON.

Three pounds of water to ten of granulated sugar, and tartaric acid as large as a hickory-nut, or, say, a level teaspoonful. There is a great deal of granulated sugar that even then will crystallize after being well boiled. To guard against this difficulty, mix honey one to two, or half and half. Honey from buckwheat or fall flowers is fully the best for that purpose. JAMES HEDDON.

a. My winter feed is combs of sealed honey. b. As indicated above, my formula is water 0, sugar 0. This appears like a captious answer, but it is not really such. It is a maxim of my bee-keeping, to avoid feeding whenever I possibly can; and I almost always succeed in avoiding it. I have never even once in my life fed a colony sugar to winter them. I must confess, however, that I do sometimes lose bees by starvation. E. E. HASTY.

Well, friends, the above replies are exceedingly interesting to me for many reasons. One part of water to two of sugar seems to be pretty nearly the general decision; and I am glad to see that a man with the experience of R. Wilkin agrees with me exactly, that just as good syrup can be made by stirring up sugar and boiling water with a hoe, as to do it in any other way. Our good friend Hasty sometimes lets bees starve, but he never feeds for winter. May be he would be able to give us some bigger reports in honey-yields, even in his locality, were he a little more given to liberal feeding when it seems to be just what is needed.

QUESTION NO. 83.—*Have you found it necessary to boil the syrup for winter food? In either case, have you found that granulation was prevented by the admixture of a small quantity of acid?*

No experience. E. E. HASTY.

No experience in that line. E. FRANCE.

Yes. I use a small quantity of acid. MRS. L. HARRISON.

No. Heat only until dissolved. Yes. H. R. BOARDMAN.

1. No. 2. Yes. Acid or honey. We prefer honey. DADANT & SON.

I have never used acid. I add honey to prevent candying. DR. A. B. MASON.

I just boil it. I have found that acid and also extracted honey prevents granulation. A. J. COOK.

Yes. I would boil the syrup for winter food, but I would make it the consistency of ripe honey, and feed tolerably early. JAMES HEDDON.

Not necessary, but highly advisable. Yes, tartaric acid or cream tartar will prevent granulation, and not injure the bees. JAMES A. GREEN.

It needs to cook until the sugar is thoroughly dissolved. This can be done without boiling. I have not used acid for many years. P. H. ELWOOD.

It is not necessary to boil the syrup; use only just sufficient heat to dissolve the sugar. Yes. Cream of tartar or citric acid. PAUL L. VIALLON.

I have not found it necessary to boil the syrup, but I think it best to heat it nearly to the boiling-point. I have never tried acid. GEO. GRIMM.

I use granulated or A coffee sugar; make it the consistency of new honey, let it boil up so as to dissolve all the crystals, and use no acids. CHAS. F. MUTH.

15 lbs. of water brought to a boil; 30 lbs. of granulated sugar stirred in, and the whole again brought to a boil, after which set from the fire and stir in 5 lbs. of honey. This makes 50 lbs. of the best bee-feed which I know of. The honey prevents granulation. G. M. DOOLITTLE.

I have always boiled it. It might do as well without the boiling, but it would certainly be slower; and, besides, I want to feed it hot. The acid certainly makes a difference, as I have, I think, proven; but I have had some granulate slightly, after adding acid. C. C. MILLER.

About seventeen years since, while living at Cadiz, O., I fed 31 bbls. of sugar in the fall. In a little of this I used tartaric acid, and a little of it I boiled; but then there was so near no granulating in all this amount that I would not think of doing more than melting it well with boiling water.
R. WILKIN.

It will be seen by the above, that most of the friends either prefer or find it more convenient to make syrup by boiling. At times certain samples of sugar granulate so as to rattle out of the cells, and fall to the bottom of the hive, to be carried out by the bees as useless rubbish; but this has so seldom happened in our experience that I do not believe I would take the trouble to boil it or to add any kind of acid. I very much prefer the plan given us by Doolittle, of preventing the granulation by the addition of a small quantity of honey—that is, where we can have perfect assurance that this honey can not by any possible chance endanger giving us foul brood.

QUESTION NO. 84.—*Mention by name the feeder you prefer.*

The Boardman feeder. H. R. BOARDMAN.

Heddon's Excelsior. JAMES A. GREEN.

Our feeder is a simple form of the Heddon feeder, and holds a dozen or more pounds.
P. H. ELWOOD.

The Langstroth. The wooden butter-dish is also a good, cheap, and simple feeder.
MRS. L. HARRISON.

We use and prefer E. France's feeder, the same as shown in A. I. Root's price list as the pepper-box feeder. E. FRANCE.

I very seldom use any feeders; but if I had to use any I would give the preference to J. M. Shuck's. PAUL L. VIALLON.

Of the few feeders that I have lying around, used on very rare occasions, it would not be fair to say that I prefer any kind. E. E. HASTY.

A fruit-jar with perforated tin cover and a tin strip soldered around it, half an inch wide, to afford room for bees to cluster under, inverted over a hole above the cluster. CHAS. F. MUTH.

I prefer to feed by raising the front end of the hive and pouring in at the entrance just at night. If I were to use a feeder, and at the entrance, I should prefer the one made by H. D. Cutting, Clinton, Mich. If to be used on top, and for large quantity, I would use the Heddon.
DR. A. B. MASON.

The one that somebody at Medina changed beyond recognition. They've improved the feeder but spoiled my glory. C. C. MILLER.

I will answer this question by a short article. It is the most perfect feeder I have any knowledge of; at least, after many changes and improvements it gives us perfect satisfaction. JAMES HEDDON.

I think the feeder I use is called the pepper-box feeder. It is the size of a peach-can, with perforated tin, and a can-screw on the bottom, encircled by a rim of tin. It is placed over a hole in the honey-board. GEO. GRIMM.

The White feeder, wrongly called the Smith feeder, in my book. I think it is perfection. It can be made of any size, is cheap, right over the cluster, and very convenient. After using it for years I have no criticism to offer. A. J. COOK.

We use an inverted tin can with a cloth tied over the mouth. This feeder can not be refilled without moving it; but it places the food right next to the cluster, and the food is taken, even in cold weather. Other feeders will do better for spring feeding.
DADANT & SON.

A division-board feeder, made by nailing a thin board on both sides of a frame, they coming within ½ inch of the top. Make all so it will not leak, and you have the best feeder in the world. If you wish to feed fast, use several feeders; if slow, fill only to the amount required. G. M. DOOLITTLE.

The name of the feeder that I prefer is a single-walled 8-frame, closed-bottomed portico Langstroth bee-hive. For an engraving I refer you to "Langstroth on the Honey-bee," a copy of which I obtained about 30 years ago when I first went into bee-business. Having purchased 72 colonies of Italian bees in the above style of hive from Adam Grimm, which I found made admirable feeders, if any of them were not honey-tight I lifted the bees out while I ran hot wax around the corners. To feed, I elevated the front end of the hive from two to five inches, and poured the feed in at the entrance. If some bees were smeared they easily crawled up on the combs, where others cleaned them off; besides, the bees could reach the honey nicely from the combs. In the absence of a portico hive I have sometimes shoved the combs a little apart at one end, and poured the feed in from the top. I have with good satisfaction fed very strong colonies profusely, even if already rich, and let them store away and seal over the empty combs from other hives, thus making a few colonies that were able to take care of themselves act as feeders for the weak. The sealed honey can be distributed at leisure. This I count an excellent way to store up surplus food in the fall. R. WILKIN.

While it is quite likely that no one feeder will ever please all the bee-friends, or even a majority of them, I think the above testimony points pretty strongly to what Dr. Miller alludes to, figured in Our Own Apiary elsewhere, or the plan advocated by Dr. Mason and R. Wilkin; namely, making the hives sufficiently tight to pour the feed on the bottom-board while the front end is elevated a little. We have used at different times a shallow tin pan, to be set inside of the hives. Feed enough may be poured into this to come up to the bottom-bars of the frames, and no bees will get drowned.

The principal objection we have to find is the bother of putting it in and taking it out. All arrangements for feeding on the bottom-board, where bees are disposed to rob, are more or less risky, especially in the hands of the novice. New hands at the business had better practice feeding by giving a very little at a time until they are sure they will not demoralize the whole apiary, and become disgusted with bee-keeping by raising an uproar in the neighborhood by bees quarreling.

TOBACCO COLUMN.

CONDITIONS UNDER WHICH WE GIVE SMOKERS TO PERSONS WHO STOP USING TOBACCO.

First, the candidate must be one of those who have given up tobacco in consequence of what he has seen and read in this department. Second, he promises to pay for the smoker should he ever resume the use of tobacco in any form, after receiving the smoker. Third, he must be a subscriber to GLEANINGS. Any subscriber may, however, have smokers sent to neighbors or personal acquaintances whom he has labored with on the matter of tobacco-using, providing he give us his pledge that, if the one who receives the smoker ever uses tobacco again, he (the subscriber) will pay for the smoker. The one who receives the smoker in this case need not be a subscriber to GLEANINGS, though we greatly prefer that he be one, because we think he would be strengthened by reading the testimonials from time to time in regard to this matter. The full name and address of every one who makes the promise must be furnished for publication.

THERE is a neighbor bee-keeper of mine by the name of Luce who has used tobacco for a number of years. I told him if he would stop using the weed you would send him a smoker. He said he did not know whether he could quit or not. He said he would try, so he came down to-day and told me to order him a smoker; that he had quit the use of tobacco; and if he ever uses it again he will pay up. Please send it to me, and I will see that he gets it.

Utica, Pa. L. F. COUSINS.

My husband had used tobacco for fifteen years. Since reading GLEANINGS he has quit its use altogether. He said he would not ask for a smoker, because it looked too much like imposing on good nature. But if you will send him a smoker I think it will encourage him never to use the weed again; and if he ever uses it again I will pay for the smoker. MRS. E. J. SHAY.

Thornton, W. Va.

Please send a smoker to Mr. Payton, who has quit the use of tobacco. If he uses tobacco any more I will pay for the smoker. He makes the same promise to pay you for the smoker if he ever uses tobacco again. He is a very old man. I think he is 76 years old, and has used tobacco nearly all his life; but he is determined to quit for the smoker, so please send it. W. J. DANIEL.

Jeffersonville, Ky.

I have been using tobacco for 15 years, though I was not as great a slave to it as some are. I concluded, after reading GLEANINGS, that I could quit. I have not used any for nearly three months, and I never expect to use it again. If you think I am worthy of a smoker, you may send it. If I ever use tobacco again I will pay for it. D. M. SWAIM.

Waveland, Ind.

I saw your offer in a sample copy of GLEANINGS, about a month ago. I have subscribed since, and abandoned the use of tobacco, as my wife wished me to do, and now I almost hate myself for ever using such vile stuff. I have not touched a bit of it for a month. If you think I am entitled to a smoker, please send it along; and if I break my promise I will pay you for the smoker.

Carpenter, Ill. ED. E. SMITH.

This is to certify that I quit the use of tobacco in and through the influence of the testimony in your paper. I used it 30 years. I began in 1858, and used it until this spring, 1888, and if I ever use it again in any way I will pay you for the smoker which you send. ALEXANDER CRAUCH.

Pinkstaff, Ill.

Smoker is received all right. Thanks. Wife thinks it a daisy. I have tried it, and it works well. Friend Steinbrenner received his also, and states that if he resumes the use of tobacco he will remit 75 cts. So there is $1.50 due you if we break our promise.

Hoboken, N. J. FRED'K HOLTKE.

ONE REASON WHY A TOBACCO-USER DID NOT NEED A SMOKER WHEN HE QUIT.

I have used tobacco since 1864, but have quit during the last few months. I do not wish a smoker, as all who quit can surely afford to buy their smokers with what they save in quitting the weed.

Elsinore, Utah. N. B. BALDWIN.

My father has been using tobacco for 40 years, and agrees to stop using it if you send him a smoker; and if he ever uses it again, he will pay for it.

Swaburgh, Neb. A. W. MORELL.

RESUMES THE USE OF TOBACCO, BUT PAYS FOR THE SMOKER.

A few years ago I received a smoker, on condition that, if I used no more tobacco, it should cost me nothing, but if at any time I took up the habit again I should pay for the same.

Long Point, Ill. G. W. BILLINGS.

I now write you to ask you to send my neighbor a smoker for his tobacco pledge; and if he ever uses it in any way again I will pay for the smoker.

Birnamwood, Wis. E. A. EASTMAN.

May God bless you, one and all, friends, and strengthen you in the stand you have taken against tobacco. A good many have found fault with our Tobacco Column, because in some sense it seems to be paying a man for doing right. Well, even if it does offer the small sum of half a dollar, as a sort of reminder to those who give it up, that they have taken a pledge to the extent of 50 cents, does not the above string of testimonies carry conviction to every lover of righteousness, that this department is doing good work? Even the Judge of all the earth offers rewards and promises to those who do right, and in olden time he made his covenant with the children of men, and this covenant was nothing more than a sort of bargain or a reward that was conditional. If humanity does not live up to the conditions, it forfeits the promises; and the friends who find it too tough for them to give up tobacco are 50 cts. out of pocket—not out of pocket exactly, for they have a smoker as an equivalent for the money, and what they have saved besides. I greatly prefer, however, not to receive the 50 cents; but I hope that all who do break their pledge will remit promptly, and own up. Half a dollar is a *very small* equivalent for a guilty conscience.

JUVENILE DEPARTMENT

Every boy or girl, under 15 years of age, who writes a letter for this department, CONTAINING SOME VALUABLE FACT, NOT GENERALLY KNOWN, ON BEES OR OTHER MATTERS, will receive one of David Cook's excellent five-cent Sunday-school books. Many of these books contain the same matter that you find in Sunday-school books costing from $1.00 to $1.50. If you have had one or more books, give us the names that we may not send the same twice. We have now in stock six different books, as follows; viz.: Sheer Off, Silver Keys, The Giant-Killer; or, The Roby Family, Rescued from Egypt, Pilgrim's Progress, and Ten Nights in a Bar-Room. We have also Our Homes, Part I., and Our Homes, Part II. Besides the above books, you may have a photograph of our old house apiary, and a photograph of our own apiary, both taken a great many years ago. In the former is a picture of Novice, Blue Eyes, and Caddy, and a glimpse of Ernest. We have also some pretty little colored pictures of birds, fruits, flowers, etc., suitable for framing. You can have your choice of any one of the above pictures or books for every letter that gives us some valuable piece of information.

CONDUCTED BY ERNEST R. ROOT.

THERE are a good many ways to stop robbing, and almost all of them are good; but you have all read of the old, old adage, that "prevention is better than cure." The best way to cure disease is to prevent it. The best way to do away with the effects of robbing is not to let the bees get started. With the best management, however, bees do sometimes get ahead of their owner, and before he knows it they will have a weak colony pretty badly used up. But, in general, how should we prevent it? Just as soon as the honey-flow has stopped, the entrance of the weaker colonies should be contracted according to their strength. The entrance to a one or two frame nucleus should be so small that only about two bees can pass at a time. Strong colonies will probably defend themselves with the entrance full width. Prevention also means to put all the sections, combs, drippings, and bits of comb containing a little honey, into a receptacle where no bee can possibly get at it. It is not safe to leave the honey accessible in a bee-proof honey-house. Somebody will be pretty sure to leave the door open. Prevention means, also, that you should not let the bees get a sip at the honey while you are examining the hive. Many bad cases of robbing are started in just such a way. As to the means of stopping robbing, after it is once started, I leave that with the young folks, who, I see, have not touched very much on the prevention side of the matter. Remember, next time we want you to write about feeding. See Sept. 15th issue.

CLOSING THE ENTRANCE WITH WIRE CLOTH TO STOP ROBBING.

My papa has 10 stands of bees. When bees get to robbing, stop up the entrance with screen wire, tacked on little blocks.

ROSELLA KENDALL, age 12.

Milton Center, O., Aug. 27, 1888.

THE WHITMAN FORCE-PUMP AS A SWARM-CATCHER.

When our bees swarm, pa gets our Whitman force-pump and a pail of water as soon as possible, and when he thinks the bees are all out that are coming out he throws the water up among them. They always settle on a tree. Then he gets a box or basket and shakes them down into it, or sometimes he cuts a limb off and carries it to the front of the hive and shakes the bees off, and they go in without any trouble. He never lost a swarm yet when he did that way.

HARRY KELLY.

Colebrook, O.

HOW PAPA BECAME A BEE-KEEPER.

My father has kept bees for three years. He has now 11 stands. He used to say he would not keep bees, as they stung too hard. But one day a stray swarm clustered on a small tree near our house. He hived them, and by working with them he learned to like bee-keeping and does not mind the stings. My father does not let the bees swarm more than once, if he can help it. He wants to keep them strong. I like to help him work with them.

FORREST OVERHOLSER, age 12.

Shenandoah, Ia., July 30, 1888.

HOW PAPA KEEPS HIS BEES FROM SWARMING.

My papa keeps bees. He has 30 hives, and is trying to keep them from swarming so they will make more honey. When they swarm, papa goes up in a tree and saws the limb off and brings it down very carefully, and shakes them on a sheet in front of the hive they came out of. Then he catches the queen and puts her in a cage. The bees will go back in the old hive again. Sometimes he cuts the queen-cells out. He has cut a good many out this summer.

MAGGIE MCCARTHY, age 10.

Madelia, Minn., July 28, 1888.

THE KING AND QUEEN BEES.

I go to school in Buffalo. Our lesson mentioned bees, and our teacher told the children there is a king and a queen bee that never go out of the hive, not even when a swarm goes out. I have a hive of my own, and I am going to look for the king, and tell you what he looks like, as you never tell us about him. My queen goes out with the swarm.

WILLIE KEAYES, age 8.

Buffalo, N. Y.

Tell your teacher that there is something for her to learn about bees yet. It is true there is a queen, but there are a good many kings (or, more properly, drones), but both do at times leave the house. Your teacher is like a good many others who have only a "smattering" of a subject.

SPRAYING SWARMS TO FETCH THEM DOWN.

My brother sprinkles the bees with salt water to make them settle. I had a swarm that my brother gave me. I hived them, and they would not stay. I hived it a great many times. I succeeded, alas! when they got their queen killed. My brother uses a quart cup to put the bees in the hive, but I used the dipper that I had to sprinkle them with. My brother has 26 bee-hives. The bees are working on sumac. As it has rained, the old bunches with berries are putting out buds. It will last for a good while yet.

WM. MORGAN.

Belton, Tex., Aug. 24, 1888.

A BEE-ESCAPE, AND HOW IT CAN BE USED IN A CASE OF ROBBING.

I will tell you how my pa stopped robbing when we had black bees, for then we were bothered with robbers; but since we have used Italians we are not troubled with robbers and moth. Pa says they take care of themselves. He got the Simplicity hive, and he made him two robber-frames, as big around as the hive, and 2 inches high, with double cones made of wire cloth; and when it is a cool day, so that pa can close the hive (for he is very careful not to close it on a warm day), then he moves the hives that are being robbed to another place, and puts an empty hive in its place and places one of the robber-frames beneath it, so that the robbers all go in and can not come out; but if it is too warm, then he lets the hive stand in its place, and puts the other frame under it so that the bees run out, but will not let them run in, and after a little while they give up; then he takes the frame away and lets our bees go in, if there are any out.

Mr. Root, it was very kind in you to advise any one not to close the entrance of the hive on a warm day, in a case of robbing. I am sure that I would not. Our best swarm of black bees was beginning to get robbed, and it was a warm day. Pa closed up the hive, and it smothered the bees and melted down their combs. Since that he is very careful about closing hives on a warm day, for it was his best swarm. KATIE M. ZEHR, age 13.

Indian River, N. Y., Sept. 1, 1888.

Your plan of robbing is similar to Frank Reed's, described in this department, only you carry out the principle a little further. Your plan can be adapted to any hive, but it costs more. We have sent you the five-cent present you selected.

SETTING A COLONY IN THE CELLAR, TO STOP ROBBING; SPRAYING WITH WATER TO BRING DOWN THE SWARM.

On the 22d of this month, one hive of our bees swarmed. When we first saw them they were nearly all out. Mother watched for the queen to come out, while grandpa and I threw water on them. In a few minutes they settled on a willow limb near the house. The queen did not come out, so grandpa watched at the hive while mother went to the swarm to see if she could not find her there; she could not find her, so she set a hive down under them with a frame of brood in it, and a newspaper right in front of it. She then shook the bees in it and set it in the shade. This was about two o'clock. Father was away, and when he came home in the evening he found the queen had stayed in the old hive. Her wing was clipped, and she could not fly.

In answer to the question, "What will stop robbing?" I would say the best thing to do is to put the colony in the cellar for two or three days, then set them out in the evening among some bushes, or in some tall weeds. NONA JOHNSTON, age 11.

Brock, Neb., Aug. 29, 1888.

THROWING A SHEET OVER A ROBBED COLONY; A WIRE-CLOTH TUBE, AND HOW IT MAY BE USED TO STOP ROBBING.

Mr. Root:—I read GLEANINGS, and you ask little boys how to stop robbing. The bees acted bad this spring. Father stopped it by closing the entrance almost up. Sometimes the swarm that is being robbed will not defend themselves. The way father does is to put a large sheet over the whole hive, pinning down the four corners. He then raises the sheet up four inches in front of the hive. The bees that belong to the hive go out and in, in regular order, but the robbers go in and fill up; and when they come out of the hive they rise on the wing quick and get caught in the top of the sheet and stay there until father kills them or lets them go home just at night. Father bought two quarts of bees last spring, that were robbers, in a hive that had glass sides and top. They went out and in through an auger-hole bored in the front end, and then a piece of wire screen was rolled up and shoved clear into the hive, up even with the outside. You ought to see the bees pour in, but not one came out. Father carried them two miles and gave them a frame of brood. They raised a queen, and in that way we got rid of all robbers. I have one swarm, and I got only 7 lbs. of box honey; but some of them are sick. They look black on the lower end, and all swell up and tremble. The other bees drag them out. What ails them? No other swarm acts that way. Our bees are beauties, very yellow. FRANK REED, aged 8.

Milford, Wis., Sept. 10, 1888.

A wire-cloth tube for an auger-hole entrance will no doubt work nicely when applied in the manner you describe. In fact, it will operate somewhat on the plan of a bee-escape; but instead of letting the bees *out* and not *in*, it lets the robbers and the resident bees *in* and not *out*. If all or even the majority of the hives in use had auger-hole entrances, the idea could be put in practice quite largely. Many queen-rearing nucleus hives have only a round hole, and it is these hives that robbers take particular pains to pester. A cylinder of wire cloth, used as you suggest, would not only prevent robbers from leaving with their ill-gotten spoils, but it would hold them and *perhaps* ultimately make them residents of the nucleus; the robbers, then, instead of depleting could strengthen the hives in numbers. After things become quiet, the wire tube should, of course, be removed, to allow the inmates to go and return as of old. The peculiar twitching which you see among your bees is no doubt caused by the nameless bee-disease, described in the A B C of Bee Culture.

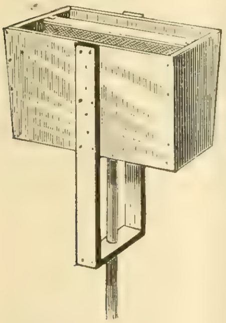
In addition to the above, from Ernest, I want to say: My young friend Frank, you have given us some exceedingly valuable suggestions. I do know that sometimes two or three hundred bees get in such a fashion of following the apiarist about when he opens hives, that it might be worth a dollar or more to get entirely rid of them. Your father's arrangement of a trap is excellent, but the idea has been given before, several times. The suggestion, however, of carrying them away a couple of miles or more so as to get rid of them entirely, is, so far as I know, new, so we credit you half a dollar for the idea. I have made nuclei several times entirely from entrapped robbers; but my experience has been that they stick to their old trade, more or less, as long as they live. They never become honest bees. Moving them off where they could not get back to bother, it seems to me would be well worth the time and trouble. A wire tube, running two or three inches into the hive, will do the business to a dot; that is, after the bees get well a going on stolen sweets, they will pour right in through the wire tube, every last bee of them, and they will never get out again until you see fit to let them out.

STOPPING ROBBING, WITH A WET SHEET.

ANOTHER SWARMING-DEVICE.

ONE day our bees got to the honey in our bee-shop, and worked all day. So pa stopped up all the holes to keep them out, for he said it would cause them to rob. Sure enough, the next day in the afternoon they went to robbing. We heard a terrible buzzing outside the house, and ma told me to go and see what was the matter with the bees. I went to look, and there was a great lot of bees flying around. I started out through the yard, and there came about half a dozen against my bonnet. I started back for the house, and they followed me clear into the house. I went after pa. He came, and said they were robbing. He put on his veil and went out to see which colony they were robbing. He came back in the house and asked for a sheet. I got him one, and he wet it and spread it over the hive. That soon settled them. Pa doesn't like to shut up the entrances on a hot day, because he is afraid it will melt the combs and smother the bees. **CLARA M. STREBY.**

Paw Paw, W. Va., Aug. 28, 1888.



In the Aug. 15th issue, page 654, friend Clara told us about her papa's hiving-box, and how he used it. Desiring to know more about its construction I requested her to have a photograph taken of it, and send it to us to be engraved. Instead of a photograph Clara sent a drawing, which we reproduce.

This swarming-box is made narrower at the bottom than it is at the top, as you see in the picture. Then a Simplicity frame is put in with comb in it, the ends resting on the board which is cut down to fit the frame. It is doubtful whether the bees would go in were there not a honey-comb in it. When the bees are taken out to be put in the hive, the frame is just lifted out and put in too, for the bees to commence on. There is an auger-hole in the bottom of the box to put the end of this pole in, as you see it is made to fit, and these pieces on the sides are to hold the pole to its place.

Paw Paw, W. Va. **C. M. STREBY.**

Your description of the hiving-box is clear, and your drawing is good. I am glad to have our juvenile correspondents illustrate their ideas by drawings. To stimulate other young friends who may understand some of the rudiments of drawing, and who might, without any very great difficulty, make a fair picture of what they are talking about, I hereby ask Clara to select any article she may choose from our fifty-cent counter. Perhaps I should add, that the drawings must represent some practical implement connected with apiculture. Here is a chance, boys and girls, to get some nice present. Your papa, I am sure, has some real nice bee-fixings that no one knows any thing about. Let us see what a good description and picture you can send along, concerning them.—Well, Clara, we can see at a glance how your papa has his swarming-box made; and without any description we could almost see how it is to be used. If there is any thing which will attract a swarm of bees, it is a frame of unsealed larvæ. The swarming-box which you have illustrated could be pushed right against a cluster of bees, and a jar of the limb would probably dislodge them on to the comb, where they would be apt to adhere. When this comb is placed in the hive it would take with it probably two-thirds of the bees. For general convenience, however, I believe I should prefer the Manum device.

SPECIAL DEPARTMENT FOR A. I. ROOT, AND HIS FRIENDS WHO LOVE TO RAISE CROPS.

"WHATSOEVER A MAN SOWETH, THAT SHALL HE ALSO REAP."

THEN it is required of us that we be very cautious as to what kind of seed we sow. I shall take up and allude to the text only in an agricultural sense, and leave the moral part to others or to yourself.

If you will take up a handful of what are called selected and screened seeds, and examine them closely, if small, under a microscope, you will be wonderfully surprised at their imperfections. You will almost exclaim, "There is none perfect, no, not one."

My attention has often been attracted to the imperfect seed, mostly in cabbage. If you will but take a few in your hand and examine them closely, you will be surprised, and your surprise will not cease there if you will sow them in an especially prepared box in your greenhouse, and note closely what a great difference there is in their strength and vigor as they break through the ground. You follow them all along through, and you will see the difference all through their growth to maturity. I have no doubt but that you have observed the above, and you will see the same great difference in radishes.

Rich land, good cultivation, and plenty of water, will make a wonderful difference in their growth; but *seed* is of vital importance, and the very foundation to success in good gardening.

In regard to good cabbage seed, I should greatly prefer to pay as high as $50.00 per pound, and get good and *perfect seed*, grown from good and perfect heads. These heads, during their seed growth, should have most if not all of the side branches removed before their blooming, and only the central stalk allowed to bloom and seed, causing all the vitality of the stalk to be thrown into only so much as could be perfectly developed, so that, at seed-gathering, there would not be more than a fourth of the number of seeds, but larger, and far heavier to the same number of seeds. For such cabbage seed it would be far cheaper to any market gardener to pay $50.00 per pound than to take seed, as ordinarily grown, as a gift; for with good and perfect seed, and they from stock of a true and tried pedigree, there can be a difference of at least one-fourth in the increased production, and often far more; hence the importance to gardeners to know that they can obtain such seeds; and the seed-grower who can and will grow such seeds, and have the gardener know that such seed is grown, will certainly find a ready market for his productions.

You well know the vital importance to successful honey production is in the seed (the queen) after nature has produced the flora. So it is with good and perfect seed. I have drawn this out to some length, but I can not stop until I say to you that I hope you may conclude to give us eight pages of "garden sass" in each issue, and I would suggest that you tax us 25 cents additional yearly, for there is not one in 100 or even 500 of your subscribers who is not more or less interested in the work of tilling the ground in some of its various ways. So, if you please, give us some gardening along with bee-keeping. There are many of your subscribers who can give us good and wholesome advice as to what to plant; how, when, and where, all of which would be new and original to many of us. Let us have some garden-talk this winter, along with bees and honey. Take up our text, and see what can be gathered toward the production of good and perfect seed. I have read, I think in the *American Agriculturist*, of the vast difference it would make in the corn crop of the United States if every farmer would get some and plant only good and perfect seed. So great would be the difference that there would be almost each year a gain of 10 per cent in the crop through good seed alone.

Altoona, Fla., Sept. 29, 1888. JOHN CRAYCRAFT.

Very good, friend C. You have given us a pretty good agricultural sermon from that grand old text that has so many applications. We will try to give you the eight pages, but we do not want any extra 25 cents. I know how great is the difference in seed, for I have watched the matter just as you have. Our Mr. Walker, who is an old English gardener, constantly insists, when we are putting out cabbage and celery plants, that a good strong plant will make a crop, while a poor plant is a waste of time and money. I used to think he was somewhat notional, but lately I have made up my mind that he was pretty nearly right. Then how shall we get good strong plants enough to cover our ground? A great deal depends on the soil and care of the transplanting-bed; but very likely good large plump healthy seeds would go a great way toward success. In saving our kidney beans, we put them through a sieve so as to make two grades —the very largest beans and the medium size. Now, I do not know whether these large ones will make a better bean-plant or not. The purchaser certainly would not get so many seeds for a quart, but I am inclined to think that it is with beans and many other seeds as it is with potatoes. A large potato cut to one eye will certainly give better results than small potatoes cut to one eye, or planted whole, or any other way; at least, in a majority of seasons. Another point: Suppose we have small cabbage seed. By giving it a little more time and plenty of room, can we not get just as good a plant as the large plump seed furnishes? Perhaps so; but large plump seed would surely be ahead where the chances are equal, as they usually are. It seems very likely, friend C., that it *would* pay to pay a good deal extra for large, perfect, plump seeds; and there is one thing that we can all of us do—send for samples of the seeds we want, before purchasing. You can get this sample by purchasing a five-cent package, then compare the seeds with those obtained from different seedsmen, and purchase the best. When you make your order, be sure to state that the seeds sent must be fully equal to the five-cent sample package. This may take time and trouble; but I think it will pay in the end. Any seedsman ought to be willing to furnish a sample of any of the seeds he deals in, for five cents. Where a good many samples are wanted, perhaps he could do better than that.

MUSHROOMS; HOW TO TELL THE EDIBLE SORTS FROM THE POISONOUS, ETC.

In Oct. 15th No. of GLEANINGS, page 772, 1887, you told us that Neighbor H. informed you that, on one of his farms, mushrooms were so plentiful he gathered a tubful in just a little while. And you said that, if the readers of GLEANINGS were not familiar with mushrooms, you would tell them something about them. I write to call your attention to it. Please tell us how they can be grown in the open air in the summer time, and all about them.

N. L. GERRISH.

Nottingham Center, N. H., Sept. 24, 1888.

Friend G., I believe there are several varieties of edible mushrooms; but in our vicinity only one is used. This one, when it first comes through the ground, looks like a white ball; but on pulling it, it proves to be a little cup, or cap, slipped over the stem, or stalk. Now, there is a poisonous mushroom that grows where large quantities of stable manure have been scattered over the ground. These very much resemble the good ones when they first come up, except in the following points: The edible kind is always pink on the under side when young, and dark-colored or black when they get large enough so as to spread out like an umbrella; while the white ones, or poisonous kinds, are always pure white. Another thing, the poisonous kind have a ring around the stalk, which looks so much like the slide on an umbrella, that moves up and down the handle, that children often call this kind little umbrellas. The edible kind also has a pleasant smell, as if it might be good for food, while the poisonous kind has little or no smell at all. The edible kind seldom grows on heavily manured ground. It is mostly found on old pasture lands. They generaly make their appearance after a wet spell of weather in the fall. About the time chestnuts begin to fall is the time for mushrooms, yet they often appear much earlier. Mushroons are nearer in taste, and in strength-giving qualities for food, to a meat diet, than any other plant that grows. We consider them as nice as oysters. They are often cooked in the same way. When we used to go chestnuting, and got a good way from home at dinner time, we would build a fire of little sticks, where it could do no harm, and gather mushrooms and lay them on the glowing embers or coals, upside down, or cup side upward. We usually carried along a paper of salt in our pockets, which was sprinkled inside the mushroom cup. In the cooking process this cup filled with a liquid, or broth. When done brown this little mushroom cup with its spoonful of broth inside was to me about the most delicious food I ever ate.

Your question, friend G., in regard to growing mushrooms in the open air, strikes, it seems to me, upon a great unexplored field. While mushrooms sell readily from 25 cents to $1.00 a pound, or even higher, in large cities, no one has yet, that I know of, worked out the conditions necessary for growing them outdoors. They are grown under benches in greenhouses, and in cellars and caves, without any trouble. Why they should not be grown outdoors, exactly as wild mushrooms grow outdoors, is more than I can tell. They require special conditions of temperature and moisture, and this is why it is only occasionally we have a good season for mushrooms. I believe there is no vegetable known that commands any thing like the price of mushrooms, and yet few gardeners grow them at all. Last winter I saw them growing among a bed of radishes in a greenhouse in Columbus. Mushrooms had been grown on the bed before the radish crop, and these, therefore, came up like any other plant among the radishes. If any of the readers of GLEANINGS can give us any further information on any of the points touched on above, we shall be very glad of it.

The friend who writes the next letter, sent it once before; but he indulged in some remarks that I thought objectionable, therefore it was returned to him. In place he sends another, with the following title:

ODDS AND ENDS.

Re-written, and the stings all plucked out.

On turning to the department of GLEANINGS which I seldom read (no fault of yours), I found you had been to friend Terry's. I was glad, for I got something of what I wanted, about that strawberry-bed of his. I am interested in strawberry culture, in a small way, as well as bee culture. Mine is the Sharpless. They did not have the advantage of clover sod, and to weed them this season sorely tried my wife, on whom the task fell, to keep weeds down, a baby quiet, other seven babies nearly grown up to forty, and to wait on the old "chap." I am a railroad man, and I have no day to call my own save the one on which "God rested from all the works which he made." While fair, they have not made the growth of vine I could wish. I want a talk on this industry by yourself, in which I want you to take up the subject of the best fertilizer. How will nitrate of soda do, applied next spring? My two grocers ship strawberries from Chicago here. I thought, "Try and meet this want."

Now about the bees: I have my coat off, inquiring for the twin brothers in bee-keeping, friends Hutchinson and Heddon. I should like to get hold of the latter. May be I had better get the size of his *boots* first. I am an imported Irishman, though not quarrelsome. I have been in a "scrimmage," but as I am five and forty, perhaps I had better go slow.

Well, Jamie, my boy, I want to tell you that last fall I fed most of my bees your pet winter rations. I did it up according to your book—wintered in a cosy cellar under the kitchen. Then what happened?

AND THEY DIED.

I had other bees which were not fed your "Warner's Safe Cure." To these I fed two-year-old-honey. Well, what happened to this batch? As your American young ladies say, they did "just splendid." These were all in one cellar, save one old L. hive that I was afraid to lift. It had had bees in it for 27 years, and, like that great mastodon which I found when tiling here, it crumbled at the touch. Even this hive, single-walled, pervious to the elements, came out tiptop. Now, what have you and all syrup doctors to say? A friend of yours and mine also writes me, "I have no use for this syrup business. Cellar wintering is an innovation on bee-nature;" and while I shall be compelled to try that method this winter again, I will adopt outdoor wintering as soon as possible. I have fed my bees when they ought to have been feeding me. I kept them strong. A honey-flow came four weeks ago. They quit their syrup, and gave me 6 per cent on my entire investment. I am glad that I took care of those creatures God gave me, and did not starve them to death as did my neighbors.

Beason, Ill. JAMES HAMILTON.

Well done, friend H. I am afraid you did not get all the "little stings" plucked out, after all; but then you give them in such a pleasant vein of good nature that I guess no one will be hurt or even offended, so we have given your article entire. I should be very glad indeed if I could tell you more about the use of chemical fertilizers for the strawberry. I have tried nitrate of soda, but I have not been able to see that it produced very much effect. The strawberries made a very good growth, and bore well, but yet only a little if any better than those that did not have it. On the spinach, the nitrate of soda made the poorest end of the patch catch up and go ahead of the best end. I have never seen any thing so sure and certain with strawberries, especially with the Sharpless, as well-rotted stable manure. I am a little surprised at your experience in feeding sugar. If you used granulated sugar for your feed, the result is different from any thing I have ever had experience with. I am inclined to think we shall find the reason somewhere else than because they had sugar stores instead of old honey. If your locality is as warm in winter, and as changeable as ours, there will be very good reason why your friend should call cellar wintering an "innovation on nature." Six per cent on your investment is a result better than the most of us have made with bees during the past two years. I like your idea of taking care of the creatures *God gave* you.

CANTALOUPE MELONS BY THE ACRE; ALSO SOMETHING ABOUT THE IMPORTANCE OF HAVING TRUE SEED.

Mr. Root:—I wish to talk a little more to you about melons. We are in the center of the best melon region in the North; and Knox County, Ind., is fast becoming famous for her great and excellent watermelons, there being hundreds of carloads shipped from this county yearly. We are beginning the raising of nutmeg melons. My man and myself have gathered and shipped, from 5½ acres of cantaloupes, 16,000 this year, and there are about 4000 more yet to gather. There were two carloads of them. We shipped to Dwyer & Vhay, Detroit, Mich., and they wired us that they were selling at 5 and 6 cts. each for the first carload, and the other car is on the way there now. Well, this looks pretty big; but if we had had pure seed we could have done better, as some of the seed was mixed with cucumber seed, and some was those long banana melons which were worse than worthless to us. I estimate the loss by these seeds at 2000, which brings the total yield, average, over 5000 per acre. Now, I want you to furnish us with good pure seed next year. The seed was not bought of you, but of a seedman who deals worldwide. Some of our seed was from Atlee Burpee, and were pure. Their "New Market" is about the proper size, and of excellent quality, but rather smooth. What the trade wants is just such a melon as the above, only more netted. If you have any improvement over the above we want it.

Now, Mr. Root, I suppose that a great many will embark in the business here and elsewhere, and for a little time the business will be overdone; and perhaps some would hesitate to publish the above facts, for fear that his business would be ruined; but as the information I have received from others has benefited me more than I shall ever be able to give in return, I very cheerfully give you the above.

We have 140 colonies, having started with 95 in the spring. Bees began swarming in April, and have swarmed at different times since, with very little swarming in June. They swarmed in July as the result of ball-willow, and water and nutmeg melon bloom, there being about 600 acres of melons in this vicinity this season. They made but very little surplus—just enough to make a few of them swarm. There is at present almost nothing they can get, except the juice of broken melons in the fields. They seize upon them in great numbers as fast as they are broken open. I believe watermelon juice (can you suggest a better name than juice?) is perfectly wholesome for bees, as we had a severe drouth here last here, and for two weeks the bees in most colonies at my home yard had to subsist on watermelons almost entirely, and then afterward gathered quite a crop of late fall honey, while my out-apiary was without range of any melon fields, and a great many young bees starved, and some left the hives, so that they became very weak before I became aware of their condition. Only about half of them gathered any surplus in the autumn, though they had the best late range. I believe bees will winter well on syrup made from watermelons. There are always many which are not fit to ship, which could be utilized in this way if safe. I will say, that I lost only 3 colonies out of 98 last winter, and they were 3-frame nuclei, having wintered five 3-frame successfully.

Emison, Ind., Aug. 15, 1888. A. WITTENMYER.

Thank you, friend W. I, too, have found out the importance of having true seed for raising melons for market; but I am sorry to say that most of the melon seed we have been able to get is not as true as it should be; and from what W. J. Green, of the Ohio Experiment Station, tells us, I should not dare to save melon seed from our own raising. We not only have all kinds of melons, cucumbers, and squashes in the same field, but we have millions of bees going from one flower to another. It seems to me that the only way to get melon seed true, will be to raise one kind by itself, so far remote from other sorts that the bees will not mix them; and I confess I do not see how it is going to be managed unless one farmer raises one and only one kind of melons, and another, further off than the range of bees' flight, takes another kind. Our large seedsmen might possibly have this done; and when we come across a seedsman who does do it, we had better hold fast to him. I am glad to have you give us so good a report of Atlee Burpee.

WORK FOR OCTOBER, ETC.

We have been very fortunate in the way of frosts, in our locality. Our first killing frost occurred on the night of the 10th; but reports at the Columbus convention brought to light the fact that we are in a favored locality. Even on the Experimental Farm, on the night of the 4th they not only had a heavy frost, but a freeze as well, while here in Medina we did not have frost enough to hurt lima beans, tomatoes, peppers, etc. I was surprised at this, for Columbus is toward 100 miles further south than we are. At the above date, my wife was in Lebanon, Laclede Co., Missouri (200 miles or more south of St. Louis), and she reports that the frost there killed all the melon-vines, while ours here were unharmed. I suppose this exemption from frost is on account of our proximity to Lake Erie. Well, even if the frost did not come till Oct. 10th, it taught us some lessons. The frost was quite severe. Water was frozen so it would hold up in little puddles, and the ground in some places would almost hold a horse. The lima beans were finished, except some that, where the poles were broken off, the vines were down on the ground. Lay your vines on the ground when a frost is expected, and they will suffer but little harm. Tomatoes, where the foliage was quite heavy, were unharmed, and may ripen still if we have warm sunshiny weather. Our worst blunder was in leaving our Concord grapes over the beehives. I had warning, though, but I told these friends that frosts in October just made grapes sweeter. They are not spoiled, but next to the skin the flavor is impaired quite a little. We had over 200 pounds of large fine grapes, and only a very few of them had been gathered.

PLANTING STRAWBERRIES IN OCTOBER.

After the last evening of our bee-keepers' convention, an invitation was sent us from the Horticultural Society to meet with them after their own society had adjourned. As the subject under discussion was strawberries, I was very much interested in it indeed; especially that part pertaining to putting out strawberries in October. Some one present mentioned that, on the Experimental Grounds, they secured quite a crop of berries from a planting that was made in October, 1887. I was so much interested in this that I wrote to Professor W. J. Green, who replies as follows:

Mr. A. I. Root:—

Regarding the Crescent strawberry-bed mentioned at the horticultural meeting, I can simply say that the plants were set 6 in. apart in the rows, early in October, and made but little growth before winter. They were mulched in December, with wheat straw. No cultivation was given in the spring, but weeds were pulled as they appeared. Soil is moderately rich. The yield was at the rate of forty bushels per acre at the second picking. Record of total yield, not kept. October is too late to set strawberry-plants in this latitude, for the best results; but this example shows that strawberries may become a profitable second crop, even though the ground can not be cleared before October. The variety had much to do with the result, and it is not probable that many other varieties would prove at all satisfactory if treated in the same manner.

Columbus, O., Oct. 11, 1888. W. J. GREEN.

In addition to the above, I want to say that we have not only put out strawberries in October, but have kept on planting through November and even into December. One year when there was nothing else for our boys to do, they set out strawberries, even when the ground was frozen so much in the morning that they could not get the plants in till noon. I think we took up a lump of dirt by means of a trowel, along with the plants. Nearly all of them lived, and they gave us quite a few berries the season after. They were mulched during winter. This matter of mulching is one that interests me greatly I have so many times had plants do just as well without mulching that I have been a little skeptical in regard to it. I presume, however, that nearly all such plants must be mulched or the frost would throw them out of the ground. Somebody has suggested that a single handful of forest-leaves laid directly over the plant will prevent freezing out. The leaves must be held in place by a very little dirt. They will be so thoroughly rotted by spring that the plants will push right through them, and you do not need to go over them to remove the mulching. Who has had experience in this line?

One reason why it is desirable to put out strawberry-plants in the fall is because the ground is clear of a crop, generally in excellent condition to work, and the gardener has more time at his disposal than in the spring, and often more well-rotted stable manure also. I always enjoy putting in a crop when I have time and facilities to do it, just to my notion, and these frosty nights give me renewed energy and vigor and enjoyment in working the soil, and doing any thing that can be done profitably.

GIVING WELL-KNOWN SEEDS NEW NAMES, ETC.

Mr. Root:—I want to tell you about some beans that I have. You like to work in the garden; and, if I am not mistaken, you like to plant some new and different things, so I will send you a few beans. There won't be enough for your dinner, but if you will save them to plant you will soon have enough for a good many meals. They are very prolific. We call them the Jessie bean. It was rather late when we planted our garden, but the beans were ripe three or four weeks ago. I will tell you why we call them the Jessie bean. I have only one girl. She is sixteen now. When a little girl, about seven years of age, she found a pail of beans which her grandpa had put away in the chamber. They were like Joseph's coat, of many colors. My little girl played with them a long time, picking out the different colors, until, getting tired, she left them, but brought a few in her little hand to me. She said, "Mamma, can't I plant these?" Now, I think it is best to please the little ones when we can. I told her to save them until warm weather. In the spring we let little Jessie plant her beans. We were surprised when they got ripe, there were so many of them. I have taken pains to plant them every year, planting them as early as possible, also saving the best seed. We prefer them to any other for a bush bean. If any of the readers of GLEANINGS would like enough for one or two hills I will send them, if stamps are sent to pay for postage, etc.; also give name.

Just a word about bees: We put ours in the cellar last fall. They wintered well, and are gathering more honey this year than last.

MRS. JENNIE M. JOHNSON.

Groom's Corners, Sara. Co., N. Y., Aug. 23, 1888.

Thanks for your kind letter; but may I suggest, my good friend, that, in coining new names for something that may be well known to seedsmen, we oftentimes unwittingly add to the confusion now existing, not only among seedsmen, but among the great gardening public at large? While I do not recognize the bean you send, I feel pretty certain that it is already classified among the names in our seed-catalogues. The size and general appearance are much the same as the black-seeded dwarf German wax bean; and as color of seed is only a sport of nature, oftentimes, the bean you have is substantially the one I have mentioned.

KEEPING CELERY OVER WINTER IN HOT-BEDS OR COLD-FRAMES.

Will celery, if small, make a marketable product if taken up at the usual time and imbedded in a fresh-made hot-bed packed in? Would it grow and blanch? Would it pay? L. F. ATWOOD.

Tallmadge, O., Oct. 8, 1888.

I am glad to be able to tell you, friend A., that we did exactly the thing you mention, last winter. We did not use a hot-bed, however, but simply packed the celery close together in a bed of very rich ground, close to the side of our factory, and covered it with sash. It grew more or less all winter; and in February and March, when none was to be had in the market here, we got 40 cts. a pound for it. In this way you can keep it all winter without a bit of trouble. When spring came it showed a strong disposition to run up to seed as soon as the weather was warm enough for it to grow briskly. I think it will pay very well, if you can get 30 or 40 cts. a pound for it. Where good celery, wintered over in celery-houses, is to be had in the market, at a moderate price, it might not pay.

OUR HOMES.

As the heavens are higher than the earth, so are my ways higher than your ways, and my thoughts than your thoughts.—ISA. 55:9.

WHEN I first, on bended knee, promised the God of the universe that I would obey him if he would make known to me that there *was* a God above who cared for his creatures, I commenced reading the New Testament. I have before told you of the wonderful way in which the book of Matthew seemed to speak to me, personally and individually. Well, after reading the New Testament all through, my wife and I commenced at the beginning of the Bible and read it all. For some years before this I had been skeptically inclined; had talked with skeptical men, and had read to some extent scientific works that taught, either directly or indirectly, in a way that seemed to ignore the Bible, therefore it was nothing strange that I found many passages in Genesis, Exodus, and Numbers, that not only puzzled me greatly, but tempted me many times to decide that this Old-Testament history must be, a good deal of it, superstition and foolish tradition. I am sorry to say, that I read the Arabian Nights through several times before I ever read the Bible through one time; and it therefore seemed to me as though a great many passages in the Bible were either borrowed from the Arabian Nights or written after the fashion of it. Again and again I prayed for light in regard to certain passages, and I went to my pastor and told him my difficulties and troubles. After such visits I felt a good deal relieved; but still there were passages that seemed to me to be so unreasonable and so totally absurd that the best I could do was to drop them for the time being, with the faint hope that, at some time in the future, light of some kind might be shed on them. I say *faint* hope, because the hope was very faint indeed. I expected that my skeptical friends would sooner or later bring up these passages and quote them to me, and then make sport of me when I was obliged to confess that I was totally unable to reconcile them with truth and reason. To my surprise, however, I never heard these passages mentioned at all; and when I expected that Robert G. Ingersoll would at once make a great lever of these very troublesome passages, I have been surprised again and again to see that he grappled only with things that are feeble and childlike in comparison. In fact, the very points that he has dwelt on, so far as I am aware, were those that were, many of them, as plain to me as the light of day. One of the passages that at one time seemed as if it were written with letters of fire across the sky, on purpose to warn me, and save me from the gulf that yawned before my unwary feet, was one of the very passages that skeptics have assailed and ridiculed. The passage is this: "If thy right hand offend thee, cut it off and cast it from thee." Well, the moment my eye caught that passage, after asking God to tell me what I must do, I knew at once. Mind you, I do not say I decided at once, for there was no *decided* about it, for I *knew* it was the answer to my prayer. Before I could take up my cross and follow Christ I must cut off my right-hand *sin* and cast it away from me. In fact, I had once unconsciously stated by the words of my mouth just where I stood; that is, I did once say out loud that I would rather be deprived of my right hand than to give up what I knew I *must give up* before I could be a Christian. It made me shiver a little when I used the expression, and especially when I thought of it afterward, for it told me in plain words just how thoroughly and helplessly I was chained, and in bondage to Satan. I do not know but Satan chuckled as he heard me confess myself so totally in his power. We sometimes speak of confessing Christ before men. Now, I tell you, friends, there *is* such a thing as confessing Satan before men; and I firmly believe that bad weak men do sometimes unconsciously give such testimony. I repeated the passage over and over. In anguish of spirit I prayed God to help me to give up my right hand unflinchingly. I hardly need tell you that it was not very long before I rejoiced in freedom from bondage, and then I loved to think of and dwell upon the fact that *through him* I was made conqueror and victor over Satan. Just imagine, then, my feelings when some skeptic quoted those glorious words of Christ Jesus our Savior as a sample of the unreasonable teachings of the Bible. I said inwardly, "May God have mercy on your poor weak understanding, if it seems to you that *that* passage is one of the hard ones!" And it has seemed so almost right along since I have been standing up freely and boldly for Christ Jesus instead of for Satan. Those who have sought to assail the Holy Scriptures have, by some strange freak that I can not explain, got hold of *promises* that are *precious* to many of us.

Well, dear readers, it is getting to be toward twenty years since I first read the Old Testament through. I think the international Sunday-school lessons have gone over these same passages the third time—may be more—since then; and although these old troubles still remain to a great extent (I mean the difficulty I have in understanding and explaining the teachings of the Old Testament as the word of God), I rejoice to tell you that they get plainer and plainer every time I go over it; and during this last time I begin to get such wonderful glimpses of God's majesty and glory, even in that part of the Bible where the children of Israel are taken to the promised land, that I have now the courage to tell you of some of those passages that have troubled me so much. I have feared heretofore to mention them, because it might suggest difficulties to some child seeking the way, that he had not met before, but I believe God will give me grace to speak them boldly, and I have faith to believe he will help me to interpret them in a way that will *strengthen*, instead of harm, every one of my friends and readers.

To commence, then, it always seemed to me very strange and singular that the great God of the universe should condescend to waste his time with such a thankless and graceless lot of "street Arabs," I think I might almost call them, as he had for his people. Before I leave that expression, "street Arabs," however, I want to tell you that, during these studies, the conviction has been forcing itself upon my mind, again and again, that, to come right down to it, A. I. Root is himself more of a "street Arab" in truth than any thing else. God was patient and kind and long-suffering with those children of the wilderness, ages ago; and in the same way he has been kind and patient and long-suffering with at least one child I know of, so much like those in his disposition and nature that it is hard telling which of the two is the worse. There is this difference, however: *I* have had the advantage of Christian parentage, and of living in an enlightened and Christian age, which they had not. A parent once tried to have a son of his stay at home and be a farmer, and accept of his father a goodly farm as a free gift. His son, however, had his own ideas, and would not accept the farm nor listen to any of his counsel. The father was greatly surprised as well as grieved, and made the remark that he could not understand why it was, that, when he tried to put the bread to the son's mouth, he would not take it. I have often thought of this before in the figure before us. God strove with the children of Jacob, and tried to feed them with the bread of heaven, but they would not have it. They preferred to go after their own lusts. He planned not only for their temporal wants, but for their spiritual and mental needs. He purposed to unfold to them the hidden treasures of knowledge, and to lead them to the promised land—a land flowing with milk and honey. They were, however, such a stiff-necked, contrary, stubborn, thankless, evil-minded set that it was up-hill work, I tell you. Even the great God of the universe himself was baffled again and again in his attempts to make them behave with any sort of decency at all. At times they seemed to have a spark of divinity in their composition, and made great resolves, and took solemn oaths of obedience; but while Moses had gone to the top of Sinai to receive the commandments cut in stone, they even *made haste* to break the first and most important commandment of all. In fact, the history of the whole human race shows hardly a parallel of depravity. Moses could hardly believe it of his fellow-men and kindred; and when the spectacle was submitted to his own eyes and ears, in righteous indignation he threw the tablets of stone to the ground and broke them. What was the use of keeping them any longer? There, right before him, with Aaron as their leader, they had trampled under foot their promises and the obligation they had taken. For the time being it seems as if Moses himself said by his action, "Well, we might as well give it all up and quit. If you think best to wipe them off from the face of the earth as entirely hopeless, I have nothing at all to say."

Moses' real true self soon came uppermost, however, and he begged piteously to have them spared. He even proposed that *he* be taken if they might be tried a little while longer; and here Moses shines out, a glorious figure of a mediator between God and man. He gives us a glimpse of Christ Jesus himself, when he came to this world on a similar errand.

Something strange now begins to appear in this history of God's dealings with the human family. In the promises which he gave to Abraham, Isaac, and Jacob, and to Moses also, no distinct word is said of any future life beyond this. In fact, there is very little allusion to it. It is true, he speaks about their being gathered to their fathers; but that might mean simple death. Some writer has said, there is not a passage in the Old Testament that holds out *any* distinct promise of a hereafter. I presume, however, there are differences of opinion in regard to the meaning of certain passages and promises. If the Old Testament does not have much to say in regard to the future life, the fact stands forth all the stronger, that, in the plan of the redemption of the human family, this work was reserved for Christ Jesus, the Son of God. It seems, in fact, to have been a part of his mission; and when, on the mount of transfiguration, we see Moses and Elijah talking with Jesus, indicating that they were still not only in existence, but that they had been all along down these ages, and, furthermore, that they were fully informed in regard to the progress of God's work in *this world*, then we begin to get a glimpse of God's plan from the beginning. Christ boldly and positively declared that this life is only a preparatory one for a greater and grander awakening beyond the grave.

When a young Christian starts out to turn his back on evil and sin, and to follow Christ, he commences a conflict; and as he fights the good fight he begins to discover a wonderful likeness between the evil in himself and the Savior's love, to God's dealings with the children of Israel. To the proud and self-righteous man of the world who openly and boldly declares he is not aware of having left any duty undischarged, there is nothing in the Old Testament to attract him. It is only to those who have been striving to be pure in heart—those who have, like David, gone down on their knees in agony of prayer, beseeching God to "create in me a clean heart, and renew a right spirit within me," that these truths become apparent.

One passage in the Old Testament stumbled me particularly. In fact, I felt afraid to read it over; when, however, our committee for selecting our Sunday-school lessons boldly, as it seemed to me, chose a lesson including that passage, I felt a little surprised at their procedure. I expected that, when we came to study this lesson, a great many, and especially the younger ones, would call up this passage and complain of it. It did not seem to strike any one, however, as it struck myself. Here is the passage:

> And it shall come to pass, while my glory passeth by, that I will put thee in a cleft of the rock, and will cover thee with my hand while I pass by. And I will take away my hand, and thou shalt see my

back parts; but my face shall not be seen.—Ex. 33: 22, 23.

My trouble came in this way: Moses had plead with God to see him face to face, or, at least, I had that impression from reading the chapter. Inasmuch, however, as God had said that no human being should see him face to face and live, he objected; but in answer to Moses' importunity he finally declares as in the passage above. He consented to let him see his "back parts," but not his face. When I began I tried to reconcile difficult passages, as I got to them, with sense and reason, but I found a good many hard things to get over. I concluded, however, to submit patiently, and to accept every thing I came to, as far as I could, without letting those remarks I had heard uttered by skeptics get before my mental vision, and drive me back. But when I came to this passage, it seemed so very much like some of the passages in the Arabian Nights, or like some fable or idle tale, I could only say, "God help me to understand this strange and inexplicable figure introduced in the book which I am trying to believe is the word of God." As I have told you, the prayer did not seem to be answered. Every time I looked at it, the passage seemed to be a puzzle, and as hard to reconcile with truth and reason as it had been in the first place. In one sense, however, the passage did me good. It helped me to be humble; yes, it made me to be meek. When somebody turned upon me, and asked me to defend my new stand, to be honest and truthful I was obliged to admit that I was not master of the mysteries of God's holy word. I could not stand up and boast of my ability to prove my position, and to demonstrate it as I would something in mathematics and mechanics, or even in bees. When a man tried to bluff me by telling me that there was no queen in the hive, and that I knew it, I soon had him under my thumb by way of argument. God evidently did not see fit to give me permission to speak of the Bible in this way. It was a wholesome check on my naturally overbearing and sometimes intolerant spirit, and it taught me humility.

I have sometimes wondered if these passages were not purposely placed in the Bible to keep us humble. Well, the passage now teaches me still another thing. God is pleased to have us plead with him. Yes, he is pleased to have us importunate. Christ shows this in several parables. It is our business to pray and wait. After the crisis is gone by—in fact, after we, with our narrow and feeble views, have forgotten how we struggled in prayer over the same matter, then the answer to prayer is unfolded. God removes his hand, as it were, and permits us to catch a glimpse of his glory and his wisdom, after that glory and wisdom has gone by and done its work. The most wonderful answers to prayer that have ever been within my experience, have come in this way. When I had forgotten the matter—perhaps given it up, or decided with meekness and humility that, if God did not see best to give me what I had been asking for, I would try to be happy without it, then came the revelation. The prayer was being answered when I did not know it, and in a way ever so much better for all persons concerned than the way in which I had planned it. Many and many a time are we moved to praise him for having so mercifully placed us in the cleft of the rock, that we might better bear the trials that we are called upon to pass through. A hymn has been composed in regard to this very expression:

Rock of Ages, cleft for me,
Let me hide myself in thee.

A careful examination of the passage in question shows that Moses *did not* ask to see God himself face to face. Moses was one of those characters that constantly demand proof. Again and again he besought God for more positive evidence. He knew the *people* thoroughly, therefore he asked God repeatedly to give him fuller particulars of his plans and purposes; and it was in a line with this request that he said, "I beseech thee, show me thy glory." In answer to this, the Lord says, "I will make all my goodness pass before thee." But it seems that Moses was not able to behold even the glory of the Lord, therefore he was placed in the cleft of the rock. The vision he was permitted to see, however, was probably sufficient, for he seems to have had ever after a greater faith and a better understanding of God's purposes and designs. I have often heard my mother mention that, in her younger days, she was for a time undecided in regard to spiritual matters. I am pained to be obliged to say that her father was one of the prominent skeptics of that vicinity, and was known for miles around as an upright man in all his deal with his fellow-men, but one who seemed to delight in assailing Christianity and the Bible whenever opportunity presented. In spite of this, my mother became a Christian at an early age, and she was probably twelve or fourteen when she made it a very earnest subject of prayer that God would give her plain evidence of the truth of his holy word—so plain that she never need be undecided nor troubled about it again.

Now, is it not possible that Moses' attitude at the time in question was very much like hers? She was so much troubled about it that she prayed again and again for clear, unmistakable evidence. The prayer was granted. In answer, God gave her such a bright, vivid, and happy experience that it has lasted through her life, and shines from her face even now in her old age. Every one who meets her is impressed with her bright faith; and that bright faith has shone from my mother's face ever since I can remember. The glimpse of God's glory that he gave her in answer to her earnest petition has lasted through a long life, and has been the means of bringing her wayward children one by one, with scarcely an exception, to the faith whereon her hopes are rooted and grounded; and yet, dear friends, this very passage that stumbled me —that has stumbled me for years—now shines out one of the brightest and grandest passages in the Old Testament. God gave Moses the glimpse that he prayed for. My mother's prayer was answered exactly in the same way; and, my poor doubting and stumbling friend, he is just as ready to give *you* the same kind of evidence as he was to give it to every faithful child of his, thousands of years ago.

Another thing in Old-Testament history that troubled me was this matter of the use of blood—sprinkling it upon the clothing, etc. In one place Aaron is commanded to take the blood in a basin and sprinkle it upon the clothing of the people as well as upon the altar. These passages continued to trouble me, because I could see nothing in it except a superstitious rite, without sense or reason. In our recent studies, the explanation has come out something like this:

In the childhood of the human family it very soon beame necessary to use object-lessons as reminders. For instance: When two people are making a trade nowadays, they will often pay a certain amount down to "bind the bargain" as we call it. One says: "Here is a dollar to bind the bargain, that there may be no backing out." The one hands out the coin, and the other accepts it, and by this act the bargain is ratified. If there is any backing out, the one could say, "Did I not hand to you a dollar to bind the bargain, and didn't you by that act of accepting it consent?" Instead of paying down part of the amount in cash, we often resort to writing, and sometimes both parties sign a piece of writing. Well, in olden time a favorite way of binding a bargain was to sprinkle blood upon the clothing; and we are told that, among heathen nations, this practice is still preserved to a certain extent. A spot of blood, witnessed by both parties, can be referred to as an evidence of the agreement. Well, God made a good many bargains and agreements with his children; and as they were notorious for breaking these bargains, Moses was directed to ratify them, or to impress it upon their minds by the time-honored custom of sprinkling blood. They could readily remember this ceremony, or ordinance, and the blood would be a remembrance or memorial of the fact. In the same way, baptism fixes upon the mind the fact that the person has accepted Christ as the Savior. I often ask the inmates of our jail, "Are you a Christian?" or, "Have you ever been a Christian?" Very often they can not remember very much of any thing. Some of them do not know whether their parents are living or not; and sometimes they do not know where nor when they were born; but I never met a man yet who could not say at once whether or not he had been baptized. In the same way, the sprinkling of blood fixes the event, the promise, and the agreement, in the mind so it can never be obliterated. My friends, it is a grand thing for us to be able to know definitely what agreements and promises we have made in life; and when it is a convenant between God and man, I tell you it is a sacred matter indeed. Now, with these suggestions does not this matter of blood-sprinkling assume a far different phase?

And almost all things are by the law purged with blood; and without shedding of blood is no remission.—HEB. 9: 22.

OUR OWN APIARY.

CONDUCTED BY ERNEST R. ROOT.

THE NEW FEEDER.

SEVERAL of the friends who met me at the national convention at Columbus stated they were sorry I had stopped this department. I wish to say right here, that I have not intended to drop it altogether, but there has been such a pile of good matter that I decided to hold it over for a while. If I omit this department occasionally it will only be to give place to other and more important matter.

Now, then, to business. On page 304 for 1887, perhaps you will remember Dr. C. C. Miller described, and illustrated with diagrams, a feeder which he had just gotten up; and although he had not then tried it he was very sanguine as to its success. On page 638 of the current volume he describes how well he likes it after giving it a fair trial in the apiary, and asks us to test it here at the Home of the Honey-Bees. This I proceeded to do at once.

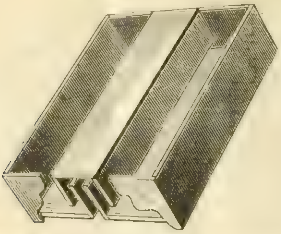
For the benefit of those of our readers who may not remember just exactly how Miller's feeder is constructed, I will remark that it is simply a shallow box fitted to go inside of a T super. The sides are double, affording a passageway to the feed. The feeder was made of $\frac{5}{16}$ stuff, and so constructed that the bees were enabled to gain access to the syrup, only by the two side passages.

Desiring to have some feeders made on the Miller plan, I showed a sample furnished by the doctor, to the foreman of our wood-working department, Mr. Warner. He at once appreciated some of its good features, but at the same time his mechanical eye recognized some defects in its mode of construction—defects which seemed to him great enough to render it difficult for the average bee-keeper to nail them together from stuff in the flat. Being made of such light material, it would be impracticable to send them made up, to customers. Another defect was, that it required wide boards and the very best and clearest lumber. Now, wide boards are expensive, costing more than the same amount of lumber in two or three narrow pieces. Mr. Warner not only dispenses with a wide board entirely, but has succeeded in improving the feeder practically in several other ways. Dr. Miller, in speaking of Warner's improvements, writes thus:

Friend Ernest:

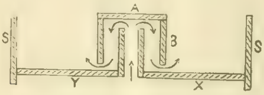
I sent you a full description of my feeder, one of the very few things that I looked upon with some little degree of complacency as being my own, trusting that, as a matter of honor, you would leave me in undisturbed possession of my hard-earned laurels; but, taking advantage of my trusting nature, you have gone to work and so changed my feeder that it will never again be recognized as mine, and my fond dream that I might go down to posterity as the inventor of Miller's feeder is rudely and for ever dispelled. It makes me almost wish I could stay where I am, and not go down to posterity at all. * * * I am, perhaps, more delighted with Warner's improvement on the feeder than I have shown myself.

Marengo, Ill. C. C. MILLER.



MILLER'S FEEDER, WITH WARNER'S IMPROVEMENT.

The above represents the feeder and its manner of construction. It is made just large enough to go nicely into a Langstroth upper story. As many are using 8-frame hives, we think best to make its outside width 12 inches instead of 13½. This would make it possible to use the feeder in either the 8 or 10 frame hives. The end torn away gives some idea of the manner in which the bees get access to the feed.



Above is a cross-section which represents this a little more exactly. The arrows indicate the direction the bees take in passing up and down to the feed. You will observe the bottom is raised a bee-space, so that it can be used either upon a honey-board or set directly upon the brood-nest itself. Now, Mr. Warner's improvement consists in making the bottom of *two* pieces, X and Y, and locating the passageway to the feed through the center of the feeder, instead of having a passage at each of the sides. You will at once recognize the advantage. First, it dispenses with the wide board; and, second, the passageway, as a general rule, will be directly over the cluster. With most feeders of that kind, the bees are obliged to pass through to the ends or outsides, and sometimes in cool weather they will refuse to do this, as Dr. Miller has already explained on page 638. The cover, A, confines the heat and prevents any possibility of the bees getting into the main division of the syrup. On the inside and lower edge of the sides, B, some narrow strips of wire cloth are tacked, so that the bees will be unable to pass into the two large receptacles of the feeder, even when the syrup is entirely exhausted. This wire cloth is not absolutely necessary, but is a convenience. The pieces, S, X, Y, B, A, are all exactly of the same length, the two ends being nailed on to each of the two pieces. This makes it possible to lessen the cost of making and sawing up the stuff. In cross-cutting, it is necessary to set the saw but twice—once in cutting off the pieces S, B, etc., and again in cutting off the ends to the proper length. This arrangement, you will notice, saves a good deal of time. If the pieces had to be cut various lengths, there would be a chance for a little variation, and consequently it would be much more difficult to make a syrup-tight receptacle.

SOME OF ITS ADVANTAGES.

Some of the advantages of this feeder, as proven by practical experience in our own apiary, briefly enumerated, are as follows:

(1) The central passageway, affording access to the syrup directly over the center of the brood-nest, closely covered by the board A in Fig. 2 to confine the heat, renders this feeder well adapted to cold-weather feeding. One serious defect with many feeders is, that the bees are obliged to go too far from the cluster during cool nights in order to get the food. As heat rises it is naturally a very warm place in the central passageway.

(2) It is made entirely of wood, a non-conductor of heat. My experiments in feeding have demonstrated in my mind, beyond all possibility of doubt, that a feeder all of wood is very much preferable to one made of glass or metal. Bees in cool weather will sometimes take feed from wooden feeders, when they will absolutely refuse to pay any attention to feeders made of tin or glass.

(3) Large amounts can be fed at a time. The feeder, when nearly full, holds 25 lbs. of syrup, and, when necessary to feed a large or small amount, it is very easy to estimate when the feeder contains 20, 15, or even 10 lbs. of feed. When we went over our colonies recently we marked on each slate about how much feed each colony would require in order to have the requisite amount of stores. Some slates were marked 5, others 10, 15, 20, 25, etc. If a colony required 15 lbs. of syrup, we filled the feeder a little over half full. If 10 lbs., a little less than half full, and so on. Thus all the feeding that a colony required could be done at one time, whether a large or small amount, and in less time than it takes to tell you.

(4) This feeder is as cheap, if not the cheapest for the amount it will feed at a time, as any feeder with which I am acquainted. For prices you are referred to Special Notices elsewhere. The use of narrow boards, and the absence of inside floats and other contrivances for preventing bees from being drowned in the syrup itself, reduces the expense of the material when compared with other feeders holding a like amount. We were obliged this year to feed something like 4 barrels of sugar, and we now have what might otherwise have been a long disagreeable job all finished and complete in about one-third or one-fourth the time it usually takes us.

DR. MILLER'S VISIT AT THE HOME OF THE HONEY-BEES.

We have had a very pleasant visit from Dr. C. C. Miller, who stopped off at Medina, *en route* for the convention held at Columbus. I met him at the train, and then inquired what was his pleasure.

"I want to see that new extractor."

"But," said I, "don't you want to see some of the folks?"

"No, let me see the extractor first, and I will see the folks afterward."

We immediately proceeded to the tinshop, where we talked, speculated, theorized, and experimented upon the feasibility and possibilities of the extractor. Very soon we were joined by A. I. R. and J. T. C., who had heard that friend M. had arrived.

Everybody in our establishment seemed to know the doctor, and there was a general desire expressed on all sides to hear him sing at the noon service. This he did in his characteristic way. We requested him to sing some of his old songs, which he had rendered to us on former occasions—" The Rock that is Higher than I," " The Land o' the Leel " (The Land of the Blessed), " My Bright Happy Home," and " I'm Wearin' awa', Jean." The last song especially was enjoyed and appreciated. If you ever have an opportunity of hearing the doctor sing, ask him to rehearse before you those songs. After you have heard them once you will want to hear them again and again. The words and the melody are such that, the more you hear them, the more you want to hear them. Of course, the doctor and I talked about " lots o' things"—extractors, feeders, supers, and, it seems to me, almost every thing connected vitally with our pursuit. Although he has been in the business for many years, his enthusiasm has not waned one whit.

GLEANINGS IN BEE CULTURE.

Published Semi-Monthly.

A. I. ROOT,
EDITOR AND PUBLISHER,
MEDINA, OHIO.

TERMS: $1.00 PER YEAR, POSTPAID.

For Clubbing Rates, See First Page of Reading Matter.

MEDINA, OCT. 15, 1888.

> When thou passest through the waters, I will be with thee; and through the rivers, they shall not overflow thee. —ISAIAH 43:2.

The new Constitution of the N. A. B. K. A. was adopted at its last meeting in Columbus.

STATISTICS.

WE had intended to insert another batch of statistics in this issue; but for some reason, only a trifle over half of our correspondents so far have responded to the statistical blanks sent out. We presume hardly time enough has elapsed for all of the reports to reach us; but if there are any among our corps of statistical reporters who have not yet reported we shall be obliged to them if they will take heed to this reminder, and hustle along their reports.

THOMAS B. BLOW.

MR. THOMAS B. BLOW, of Welwyn, Herts, England, a bee-keeper and supply-dealer, started Sept. 19th on the steamer City of Rome, for a visit of eight weeks in America among American bee-keepers. Mr. Blow has traveled quite extensively through Europe, and visited noted bee-keepers. He now proposes to increase his bee-keeping acquaintance with his American cousins. He writes us that among others he will pay us a visit, and we now expect him almost daily. We shall be glad to welcome him here at the Home of the Honey-Bees.

BUCKWHEAT AN A HONEY-PLANT.

THE editor of he *Canadian Honey Producer*, in his issue for October, reports 10 lbs. of honey in a single day by one colony, from buckwheat. The day was showery, so the bees were enabled to work on it from morning till night. Now, friends, where is there a plant in our whole list of plants, that are raised for honey alone, that has given a yield like this? I venture to say, that no one has ever yet given us any thing like it. We should like to have friend Holterman tell us more about it Was the buckwheat the new Japanese, the silverhull, or the old-fashioned kind?

THE CONDITION OF THE BEES IN SCOTLAND AND ENGLAND; THE OUTLOOK.

We learn from the *Bee-Keepers' Record* of Oct. 1, edited by W. B. Carr and Wm. Raitt, that the prospects are any thing but encouraging. In a leading editorial, W. B. C., from Cheshire, Eng., says:

> In all our experience we can not recall a time when bees were in so deplorable a condition as now. . . . Notwithstanding the fact that skilled bee-keepers are now so numerous and sugar so cheap, we may safely assert that more colonies of bees will perish this winter in the United Kingdom, unless assistance be given, than has ever happened before in the history of the craft.

Wm. Raitt writes concerning the season in Scotland: "So far as we have yet learned from private sources, the early honey season has been a comparative failure."

BEE-KEEPERS' CONVENTION SONGS.

THE second of the songs which were rendered by Dr. C. C. Miller at the convention in Columbus is inserted elsewhere. Both of them were well received, and it was evident to all present that both the words and music were possessed of no ordinary merit. The doctor sent copies of both songs to George F. Root, whose name is almost a household word in every family where music is appreciated. It will be remembered that Mr. R. is the author of Root's " Curriculum." In a letter which Mr. Root wrote to Dr. Miller, dated Sept. 27, he says:

> I *am* glad to hear from you, and to get your songs. They are characteristic and *good*.
>
> Yours truly, *very*, GEO. F. ROOT.

Such a statement from this source will be appreciated. Remember that not only the words, but the music is original.

SPECTACLES VERSUS ILLUMINATING OIL.

I HAVE just made a discovery. No doubt some of the older friends will smile at it, especially when I tell you that, although I have sold spectacles for years, I have never discovered, until I was obliged to use them myself, that with them you can read comfortably with an amount of light that would not enable us to read at all without them. I have never used spectacles at all until within the past few weeks, and I have put off using them for some time because I knew it would be a great trouble for me to keep track of them—they would always be somewhere else when wanted. My first trouble was at our teachers' meeting. As we sat around the coal fire, with the light from the chandelier overhead giving ample light for all the rest to read without difficulty, I had to give up, for I could not read even my allotted verse until a kind brother handed me his specs; and I was quite surprised to find that there was plenty of light with their aid, although I could not read at all without them. I have been astonished to find that even our ten-cent spectacles and nose-glasses afford such wonderful relief during these dark autumn days. When there is plenty of daylight I have no difficulty in reading almost any thing with the naked eye, except that I have to hold it at pretty nearly arm's length when the print is rather fine.

EDITORS OF BEE-PAPERS ON FRATERNAL TERMS.

THE last *American Bee Journal* has come to hand, bright and newsy with its convention items. The editor of that journal, among other things, says some very pleasant things of us and ours. It is not so much *what* is said, but the kindly spirit which animated those expressions, that pleases us. How gratifying it is, that editors of bee-papers, unlike some in other pursuits, can say kind things of each other, and not exhibit signs of jealousy. By the way, immediately after the adjournment of the convention, the hall where the association met was occupied by a glee-club of who sang in the interest of one of the great political parties. See page 788. The great majority of the members of the convention remained to listen to the singing (which was very fine), and accordingly took seats on one side of the singers. Quite by accident, the editors of the representative bee-papers sat in a line so straight, indeed, that, if a cannon-ball had been fired along that line it would have swept them all down. It was Hutchinson, we believe, who first called attention to this phalanx of editors. Let's see: There was Holterman, of the *Canadian Honey Producer;* Newman, of the *A. B. J.;* Hutchinson, of the *Bee-Keepers' Review*, and your humble servants. This little incident, quite accidental in itself, represents the fraternal feeling that exists among us, we feel sure; and God grant that editors of the bee-papers may never feel ashamed to sit together and be "kind o' decent."

LOOK OUT FOR HIM.

JUST before the honey season opened last June, when everybody wanted every thing without a moment's delay, we received the following letter:

> A. I. ROOT:—Will you please send me the brood-frames and section boxes for 6 Simplicity hives? I have the 12 empty hives, equal to 6 two-story, which I want complete. I bought of Lowell Hummer, Esq., and he had not the fixtures, but requested me to write you for them. Please send immediately by express, C. O. D., to Marydell, Md., via Del. & Ches. R. R., and oblige Yours very truly, THOMAS B. JOHNS.
>
> Templeville, Maryland.
>
> P. S.—Please drop me a card when you ship. T. B. J.

You will notice that the above order makes a pretty heavy package to go by express; but as our friend underscored "immediately," and plainly ordered by express, we decided to send the goods as he directed, especially as the letter was written by a man who is evidently accustomed to do business, and one who knows what he is talking about. We wrote him at once that the express charges would be high, but presumed that he knew what he was doing when he so plainly ordered by express. When he got the hives, however, he found that the express charges were so high that he refused indignantly to receive the goods. We wrote him at once, that, as we had his order in plain black and white, we should insist either on his taking the goods or else paying the charges both ways, suggesting that he could save quite a little money by returning the goods by freight. However, he refused to do any thing about it, and let the hives come back to us with a charge of $6.15 expressage both ways, as our reward for doing our best to accommodate our friend. We have informed him that we shall publish him if he does not refund the consequences of his blunder. Of course, he would have to pay for the consequences of his plain black and white order; but an attorney in his vicinity informs us that he is one of the individuals who have their property all in their wives' name. By the way, my friend, do not ever fix your property in such a predicament as that, as you value your good name, and wish to stand as a man among men.

ADVERTISEMENTS THAT DO NOT PAY.

INASMUCH as we have published kind words in regard to the value of our advertising columns, it is no more than fair that we give the other side.

> Inclosed find $2.40 to balance account. I have received only a 10-cent order, and am out $2.30, so I am one who is left of your many customers. I expected to sell at least enough seed to order some supplies of you, as that is what I intended to do with the money obtained from sale of the seed. My plan failed, and, of course, I feel the disappointment as well as the loss. GEO. W. BALDWIN.
>
> Forest City, Mo., Oct. 8, 1888.

Now, why didn't his advertisement give some sort of return for the $2.40 invested? By referring to page 674, in our issue for Sept. 15, you will find the advertisement is of bee-balm seed, 50 cts. per ounce. At the same time, we have on the pages of GLEANINGS the same seed advertised at 15 cts. per ounce, and it has also been offered in our catalogue for more than a year at 15 cts. per ounce. Is it any wonder that our friend does not get any returns for his advertisement? He is certainly very much at fault in undertaking to advertise something for sale without first inquiring the current price; and the editors of GLEANINGS are also at fault for not writing him when the advertisement was received, as it would be money thrown away to undertake to get more than three times the regular price. It is true, a good many editors take the ground that, when a man sends in an advertisement, and pays for it, it is his privilege and business to know what he is doing. Under the circumstances, we credit our friend with half of the amount he has paid us. A good many, in sending in their advertisements, tell us to insert it if, in my opinion, it will be a profitable investment; and I am always glad to give my advice in such cases, and I can not remember that I have yet made a mistake. We are glad to get advertisements, but we do not want anybody's money for advertisements or any thing else, unless they get some kind of fair equivalent.

NOT BEING EXPLICIT.

WELL, there are a great many ways in which people fail to make themselves understood; but there is one fashion that seems to have got deeply rooted among a certain class of the brethren, that makes much trouble. It is a little funny, too, to think that great numbers of people should adopt the same fashion of doing business. It is this: Using the exact phrase in *paying a debt* that you would in *ordering goods*. There are three or four quarrels on hand now, just on account of this queer fashion. A man asks us to send him an A B C book, saying he will pay for it in a few days; then when he comes to make payment, he writes:

> Inclosed find $1.25, to pay for your A B C.

Now, in the above you will notice that not a word is said to enable us even to guess he means the money is payment for a book which he has already received. With our large business we can not remember that he is owing us $1.25 for an A B C book; and we do not look on his ledger page, because he says nothing about it. It has been suggested that we examine our ledgers every time we receive a letter with money in it, to see whether it is in payment of a bill, or an order for some goods. But think of the immense labor this would entail upon us. To cure this evil, we have printed on every postal card we use these words:

When remitting for goods already sent, state it so, not repeating the order, lest we fill it again.

But notwithstanding, the thing keeps coming up over and over again. Of course, we always tell them that we are quite willing to take the goods back, but that we shall expect them to pay express or freight charges, because of their carelessness. One old friend and patron declares that, if we make him send the hives back at his own expense, he will never trade with us another cent in the world, at the same time admitting that it was his blunder in not explaining that the money was to pay an old bill instead of being an order for more goods. We finally settled the matter by telling him he could keep the hives until some future time when he did need them, and that he need not pay for them, not even pay the interest, until he did need them. Now, won't you try to be careful in this matter? Had our friend used the word *the* instead of *your*, it would have been all plain enough.

FOUR-PIECE SECTIONS OF WOOD, EXACTLY ALIKE.

SOME of the older subscribers of GLEANINGS may remember that, years ago, I had a section made of six pieces of wood, and the six pieces were all exactly alike. At the convention in Columbus, I was delighted to hear that those who want sections with bee-passages all around—that is, on each of the four sides, could have them by making each one of the four pieces exactly alike. Now, you may think this is a small matter; but I tell you, it is an important one. As four-piece sections are now made, each box must be packed so as to contain the same number of side pieces that there are top and bottom pieces; and the consequence is, it requires an expensive hand, comparatively, to pack them up and make no mistake; and even then somebody will be saying, every little while, "You sent me too many tops and bottoms, and not enough side pieces." When they are all the same thing, however, any child can put them in a box, for they do not need to be counted at all; and the friend who receives them can put up complete sections as long as he has four sticks left. Another thing, in their manufacture we can perfect our machinery—educate it, as it were, to make just this one thing and nothing else; and when that one thing is done exactly as it should be, the *whole section* is always exactly as it should be. In fact, it makes it possible to have an automatic machine that is taught to do this one thing and nothing else. We have not yet made any in this way, but we can readily do it, without any change of machinery. This is only one of the many things that were worked out where a whole multitude of thinking minds were grasping the same subject.

KEIFER PEARS—OUR REPORT.

INASMUCH as a good deal of fault has been found with the Keifer pears, I want to say that, with us, they are a success. The trees are wonderfully handsome and vigorous, and have never yet so far shown a bit of blight. They bear great crops of pears when quite small. The fruit is very handsome, and, best of all, I think them just delicious. They are full as juicy as a Bartlett; but the flavor has just a little in it of something like a ripe mandrake, as nearly as I can tell it. We gathered them and laid them on a shelf in a dark closet. That is the way Dr. C. C. Miller said you must do with pears to have them good; and those that grow on *our* trees are certainly good, treated in this way.

SPECIAL NOTICES.

CATNIP-SEED WANTED.

Not very much, however, for there is only a very limited demand for it at the present time; but if some of the friends have about a pound that they know by experiment will grow, we can pay them 50 cts. for it delivered to us.

DR. MILLER'S FEEDER (SEE OUR OWN APIARY).

Dr. Miller's feeders improved, made large enough to hold 25 lbs., suitable for either an eight or ten frame Langstroth hive, 13 cts. each; $1.10 for 10; $10.00 per 100. The same nailed up, double these prices. See page 817 for description.

RETAIL PRICE OF JAPANESE BUCKWHEAT.

The crop of this seems to be abundant this year, and we have decided on the following prices to begin the season with: $2.00 per bushel; 60c per peck; 7c per lb., or 15c postpaid. We have had a good deal of seed offered us already, and we hope we may not have to advance on the above next season, and I hardly think the price will go below.

BARGAINS IN COMB-FOUNDATION MILLS.

We have to sell, the following described fdn. mills, which we consider a bargain at the prices we ask.

One twelve-inch latest improved, of our make, that has made only a few pounds of foundation, and was exchanged for a 14-inch mill. We offer this for $25.

One 12-inch mill, which is composed of a Dunham frame in which we have put a new pair of rolls, of our latest and best pattern. This is just as good as one of our new 12-inch machines, but, not being the regular pattern, we offer it for $25. Both the above machines are geared at both ends, and have a back gear.

One 10-inch Pelham mill, almost new. We took this in trade, and offer it for only $9; regular price is $15.

BEES, Queens, Hives, Given Comb Foundation, Apiarian Supplies, German Carp, Small-fruit Plants. Send for catalogue free. **E. T. Flanagan**, Belleville, Ills. 1-24db.

WANTED.—To contract Flat Dutch Cabbage at $40.00 per 1000, on cars here; 8 to 15 lbs. each. M. ISBELL, Norwich, N. Y. 20d

FOR SALE.

FULL COLONIES OF PURE ITALIAN BEES,

In A. I. Root's Simplicity hive, only $4.00. Pedigreed Poland-China swine at reasonable prices. White and black ferrets; single ferret, either sex, $2.00; per pair, $3.50; per trio, $5.00. Pure White Leghorn fowls, single bird, $2.00; per pair, $3.50; per trio, $5.00. Safe arrival always guaranteed.

Address **N. A. KNAPP,**
19-20d **Rochester, Lorain Co., Ohio.**

☞In responding to this advertisement mention GLEANINGS.

FOLDING BOXES.

Enclose your COMB HONEY in our Cartons Prices Reduced for 1888. Sample 5c. 20 page Catalogue of Glass Jars, Honey Labels, etc., FREE. Send for it. Address **A. O. CRAWFORD, S. Weymouth, Mass.**

☞In responding to this advertisement mention GLEANINGS.

DADANT'S FOUNDATION FACTORY. Wholesale and retail. See advertisement in another column. 3btfd

NEW YORK. NEW JERSEY.

FOREIGN ORDERS SOLICITED.

EASTERN ❊ DEPOT

(Bees.) —FOR— *(Queens.)*

EVERYTHING USED BY BEE-KEEPERS.

EXCLUSIVE MANUFACTURER OF THE

STANLEY AUTOMATIC HONEY-EXTRACTOR.

Dadant's Foundation, Wholesale and Retail.

WHITE POPLAR OR BASSWOOD SECTIONS.

One-Piece, Dovetail, or to Nail, Any Quantity, Any Size.

COMPLETE MACHINERY—FINEST WORK.

Send for Handsome Illustrated Catalogue, Free.

E. R. NEWCOMB, Pleasant Valley, Dutchess Co., N.Y.

☞In responding to this advertisement mention GLEANINGS.

MASS. CONN.

DISCOUNTS FOR EARLY ORDERS.

It has been our custom in the past few years to offer discounts during the fall and winter on many articles in our catalogue, so as to divert as much as possible of the spring trade into those early months, so that we may not be so crowded during the spring months that we can not attend to orders promptly. We intend to make the discount sufficient to make it an object to buy early, so that, even if you have to borrow the money, it will pay you to do so, providing you know pretty nearly what your wants in the spring will be. It is best, too, to get your stuff early, so as to have it nailed together and painted during the long winter evenings and dull times when you have nothing else to do; then it will be all ready when you need it in the spring. Of course, to offer these inducements cuts down our margin on the goods to a small basis; but we prefer to do so rather than have the trade come all at once, and then perhaps be obliged to disappoint many of our customers by not shipping promptly. Then, too, we have the machinery all ready, and it might as well be running as not. Below we enumerate the articles on which we will allow a discount, in two lists: During September and October discounts will be

10 PER CENT.

Entrance Guards, Comb Fdn., Fdn. Mills, Parker's and Gray's Fdn. Fasteners, Blood Rollers, Wire-Imbedders, Wired Frames, put up and in flat, with and without Fdn.; tinned Wire, tin Bars, Carlin Fdn. Cutters, plain Division-boards, Honey-extractors, Broken-comb Baskets, Brood-frames, Metal Cornered, all Wood and Reversible; also Metal Corners, Slatted Wood-zinc and all-zinc Honey-boards; Sections and Wide Frames; Lawn-mowers and Carpet-sweepers.

5 PER CENT.

Alighting-boards, Chaff Cushions; Circular Saws and Saw-mandrels; Star Saw-set; Comb-holder; Comb-buckets; Chaff Division-boards; Enamel Cloth and Sheets; material for Extractors; Bee-feeders; Files; Barnes Sawing-machines; Wire Nails; Bee-hives, all kinds, put up and in flat; Combined Crates, T Supers, and tin Rabbets and T tins; Honey-knives; tin Separators; Clark Smokers; Wax-extractors; Daisy Wheelbarrows.

No discount on articles not mentioned in either of the above lists. During November and December, the discounts will be 8 and 4 per cent respectively. In January, 6 and 3 per cent; in February, 4 and 2 per cent. After Feb., 1889, no discount.

A. I. ROOT, Medina, O.

MUTH'S
HONEY-EXTRACTOR,

SQUARE GLASS HONEY-JARS,

TIN BUCKETS, BEE-HIVES,

HONEY-SECTIONS, &c., &c.

PERFECTION COLD-BLAST SMOKERS.

Apply to CHAS. F. MUTH & SON,
CINCINNATI, O.

P. S.—Send 10-cent stamp for "Practical Hints to Bee-Keepers." *(Mention Gleanings.)* 1tfdb

1888. 1888.

Pure Italian Bees and Queens

for sale in Full Colonies or Nuclei. Five L. frame nuclei a specialty. My queens and bees possess all the good qualities of the most desirable honey-bee. Send for prices.

WM. LITTLE,
Marissa, Ill.

6tfdb

☞In responding to this advertisement mention GLEANINGS.

BEES FOR SALE.

I have 80 fine swarms of bees in Simp. and Langstroth hives, which I want to sell. Price $200. Twenty swarms are Italians; honey enough in hives to pay for the whole. F. TOMPKINS,
Lawsville Center, Susq. Co., Pa.

NEARLY THIRTY TONS
—OF—
DADANT'S FOUNDATION

SOLD IN 1887.

It is kept for sale by Messrs. T. G. Newman & Son, Chicago, Ill.; C. F. Muth, Cincinnati, O.; Jas. Heddon, Dowagiac, Mich.; F. L. Dougherty, Indianapolis, Ind.; B. J. Miller & Co., Nappanee, Ind.; E. S. Armstrong, Jerseyville, Ill.; E. Kretchmer, Coburg, Iowa; P. L. Viallon, Bayou Goula, La., M. J. Dickason, Hiawatha, Kansas; J. W. Porter, Charlottesville, Albemarle Co., Va.; E. R. Newcomb, Pleasant Valley, Dutchess Co., N. Y.; D. A. Fuller, Cherry Valley, Ill.; J. B. Mason & Sons, Mechanic Falls, Maine; G. L. Tinker, New Philadelphia, O., Jos. Nysewander, Des Moines, Ia.; C. H. Green, Waukesha, Wis.; G. B. Lewis & Co., Watertown, Wis.; J. Mattoon, and W. J. Stratton, Atwater, O., Oliver Foster, Mt. Vernon, Iowa; C. Hertel, Freeburg, Ill.; Geo. E. Hilton, Fremont, Mich.; J. M. Clark & Co., 1409 15th St., Denver, Colo.; Goodell & Woodworth Mfg. Co., Rock Falls, Ill.; J. A. Roberts, Edgar, Neb., E. L. Goold & Co., Brantford, Ontario, Canada; J. N. Heater, Columbus, Neb., and numerous other dealers.

Write for *free* samples, and price list of bee supplies. We *guarantee every inch* of our foundation *equal to sample in every respect.* Every one who buys it is pleased with it.

CHAS. DADANT & SON,

3btfd **Hamilton, Hancock Co., Illinois.**

☞In responding to this advertisement mention GLEANINGS.

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Syrup, Feeding. . . . . . (Q.B.) 848
Vespa Maculata 836
Vinegar from Honey. 835
Wasps. 836
Wintering, Outdoor. 840
Worms, 1000-legged. 836
Wooden Separators. 833

VENTILATION.

If you are in doubt as to whether your bee-cellar needs ventilation, or as to the kind or amount of ventilation needed, read the October BEE-KEEPERS' REVIEW. It gives the views and experience of the leading bee-keepers. The November number will discuss "Moisture" in bee-cellars. Correspondence upon this topic is solicited. All articles that are used will be paid for. Please read the October number before writing upon "Moisture." Price of the REVIEW, 50 cts. a year. Samples free. Back numbers can be furnished.

The REVIEW and "The Production of Comb Honey," for 65 cts. Address

W. Z. HUTCHINSON,
613 Wood St. **Flint, Mich.**

☞In responding to this advertisement mention GLEANINGS.

FOR SALE. Choice cockerels, L. Brahmas, P. Rocks, Rose Comb B. Leghorns, White P. Rocks—all pure bred. Sold cheap *now* to reduce flocks. Also Pekin Ducks.
S. P. YODER, East Lewistown, Mahoning Co., O.

NEW CROP SWEET-CLOVER SEED, all white variety. For sale at 12 cts.
A. SNYDER,
21d Coeyman's Hollow, Albany Co., N. Y.

The BUYERS' GUIDE is issued March and Sept., each year. It is an encyclopedia of useful information for all who purchase the luxuries or the necessities of life. We can clothe you and furnish you with all the necessary and unnecessary appliances to ride, walk, dance, sleep, eat, fish, hunt, work, go to church, or stay at home, and in various sizes, styles and quantities. Just figure out what is required to do all these things **COMFORTABLY**, and you can make a fair estimate of the value of the BUYERS' GUIDE, which will be sent upon receipt of 10 cents to pay postage,

MONTGOMERY WARD & CO.
111-114 Michigan Avenue, Chicago, Ill.

☞In responding to this advertisement mention GLEANINGS.

DRIED PEACHES, good quality, at 6 cts. per lb. Good dried apples, 4½ cts. per lb., all free from worms. Boxed and on cars at those prices.
18tfdb T. A. GUNN, Tullahoma, Tenn.

BEES FOR SALE.

I have 80 fine swarms of bees in Simp. and Langstroth hives, which I want to sell. Price $200. Twenty swarms are Italians; honey enough in hives to pay for the whole. F. TOMPKINS,
Lawsville Center, Susq. Co., Pa.

DADANT'S FOUNDATION FACTORY, WHOLESALE and RETAIL. See advertisement in another column. 3tfbd

HONEY FOR SALE CHEAP.

Address

JAMES HEDDON,
DOWAGIAC, MICH.

Mention Gleanings. 21tfdb

DADANT'S FOUNDATION FACTORY, WHOLESALE AND RETAIL. See advertisement in another column

BEES, Queens, Hives, Given Comb Foundation, Apiarian Supplies, German Carp, Small-fruit Plants. Send for catalogue free. **E. T. Flanagan**, Belleville, Ills.
1-24db

Wants or Exchange Department.

Notices will be inserted under this head at one-half our usual rates. All ad's intended for this department must not exceed 5 lines, and you must SAY you want your ad. in this department, or we will not be responsible for any error. You can have the notice as many lines as you please; but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale can not be inserted under this head. For such our regular rates of 20 cts. a line will be charged, and they will be put with the regular advertisements.

WANTED.—To exchange full colonies of bees, $5.00, for poultry, seeds, tools, honey-boards, fdn., sections, F. P. saw, or any thing I can use on farm or apiary. W. H. LAWS, Lavaca, Ark.
16tfdb Ex. Office, Ft. Smith.

WANTED.—To exchange for extracted honey, a 10 h. p. horizontal engine, worth $200. I will give somebody a rare bargain. Speak quick.
15tfdb C. H. SMITH, Pittsfield, Mass.

WANTED.—To exchange dried fruit, peaches and apples, for good clover and basswood honey. Will give 1 lb. of peaches for 1 lb. of honey.
18tfdb T. A. GUNN, Tullahoma, Tenn.

DO you wish to exchange extracted honey for supplies? If so, write at once to
15tfdb CHAS. H. SMITH, Pittsfield, Mass.

WANTED.—A reliable man, with small family, who has had some practical experience in the care of bees, to work upon the farm, in the apiary, and make himself generally useful. Will furnish house, and pay liberal wages to the right man.
A. E. WOODWARD, Groom's Corners, Sara. Co., N. Y.
20-21-d

WANTED.—To exchange Twombly knitting-machine, two plates, two sets needles, good as new, for a self-inking printing-press, or a double-barrel breech-loading shot-gun, 12 gauge or less, or offers. E. S. REMINGTON,
20 21 Silverton, Marion Co., Or.

WANTED.—To exchange 250 colonies of bees, for horses, mules, wagons, buggies, and 4 h. p. engine, or any thing useful on a plantation.
21tfd ANTHONY OPP, Helena, Phillips Co., Ark.

WANTED.—To exchange History of England, Greece, Rome, Shakespeare, and Great and Eccentric Characters of the World; as good as new, valued at $6, for bees by the pound. Books mailed now, bees to be delivered next May.
G. W. MCGUIRE, Dark Ridge, N. C.

HONEY COLUMN.

CITY MARKETS.

PHILADELPHIA.—*Honey.*—The demand for honey is opening fairly well, but sales at top quotations are not frequent. We quote: Fancy white clover, in extra 1-lb. sections, 17@18; prime 1-lb. sections, in ordinary boxes, 15@16. Two-lb. sections, 14@16. Buckwheat, 10@14, according to shape, etc. While the above is a fair basis of our market, we do not promise to realize any thing but current salable values, nor to hold. PANCOAST & GRIFFITHS,
Oct. 25. Philadelphia, Pa.

MILWAUKEE.—*Honey*.—The market for honey is quite steady, and supply ample for the demand, while the demand is only moderate. The present values have a tendency to restrict a general consumption of the sweet.

Fancy white 1-lb. sections, 18@20; same in 2-lbs., 16@18. Good white, 1-lb., 16@18. Good dark, 1-lb., 15@16; fair dark, 1-lb., 12@14. Extracted in kegs and half-barrels, white, 8½@9; same, amber, 7½@8; pails and jars, white, 9@9½; bbls. and half-bbls., dark, 6@6½. *Beeswax*, 22@23. A. V. BISHOP,
Oct. 25. Milwaukee, Wis.

ALBANY. — *Honey.* — Honey market unchanged since our last. Good demand, and prices favor the seller. White clover, 14@20, according to style and size of comb. Buckwheat, 12@14, according to style and size of comb. These prices are for honey in good order, and put up in merchantable shape. Extracted, white, 7½@8½. Dark, 6@6½.
H. R. WRIGHT,
Oct. 25. Albany, N. Y.

CINCINNATI.—*Honey.*—There is no life in the honey-market, with a retail demand only for best qualities of comb and extracted honey. Demand from manufacturers is very slow. Extracted honey brings 4½@8 on arrival. Comb honey, 12½@16 in the jobbing way. *Beeswax.*—Demand is good. It brings 20@22 for good to choice yellow, on arrival.
Oct. 24. CHAS. F. MUTH & SON,
Cincinnati, Ohio.

NEW YORK.—*Honey.*—Market for comb honey unchanged at last quotations. Extracted is doing better. We quote ½ cent higher all around, except for buckwheat.
Oct. 26. F. G. STROHMEYER & CO.,
122 Water St., New York.

CHICAGO.—*Honey.*—Honey is in good demand in a small way. Few lots are being taken. 17@18 is the prevailing price for best grades, although fancy brings up to 20. Two-pound sections bring 15@16. Dark, slow at 14@15. Extracted, 7@9, according to quality and style of package. R. A. BURNETT,
Oct. 24. Chicago, Ill.

ST. LOUIS.—*Honey.*—We have nothing special to report on honey. Choice white comb, 12@13. Choice extracted, in cans, 7@9; bbls., 5½@6½. Inferior, less as to quality. *Beeswax*, lower. Prime, 20.
W. B. WESTCOTT & CO.,
Oct. 20. St. Louis, Mo.

BOSTON.—*Honey.*—The honey-market is more active; and if sales continue as good, it will be safe to put prices a little higher. We quote best one-pounds, 17@18; two-pounds, 16@17. Extracted, 8@9.
BLAKE & RIPLEY,
Oct. 25. 57 Chatham St., Boston, Mass.

KANSAS CITY.—*Honey.*—Choice white comb, 1-lb., 17; choice fall comb, 1-lb., 15. White California, 1-lb. comb, 17; amber, California, 1-lb. comb, 14; white, Cal., 2-lb. comb, 16; amber Cal., 2-lb. comb, 14. Extracted, white, 8; amber, 7.
CLEMONS, CLOON & CO.,
Oct. 25. Kansas City, Mo.

CLEVELAND.—*Honey.*—Very little new honey in our market now. No. 1 white comb honey is selling at 16@18 for 1-lb. sections, while inferior grades sell from 12@15. A. C. KENDEL,
Oct. 24. Cleveland, Ohio.

COLUMBUS.—*Honey.*—Gilt edge, white, is selling at 18@20; dark, 15@16. Extracted, 12½@15. Honey is scarce, in good demand, and sells readily at price quoted. EARLE CLICKENGER, [illegible]
Oct. 24. Columbus, Ohio.

NEW YORK.—*Honey.*—Honey is in good demand. Prices are from 15@17. White clover is 13@15. Buckwheat honey is 12; extracted, white clover, 7. THURBER, WHYLAND & CO.,
Oct. 27. New York.

ST. LOUIS.—*Honey.*—Market is quiet, but prices hardening on account of scarcity. We quote strained and extracted, 5½@6, according to quality; if in cans, 7@8. Comb, 12½@15. *Beeswax*, prime, 21.
Oct. 21. D. G. TUTT GROCER CO.,
St. Louis, Mo.

FOR SALE.—First-class heart's-ease honey in tin cans, two cans boxed together; weight 125 lbs. per box; $10.33. Also barrel lots. H. W. FUNK,
Bloomington, McLean Co., Ill.

FOR SALE.—1000 lbs. extracted buckwheat honey in kegs of 150 lbs. each, at 6c per lb.
W. D. WRIGHT, Knowersville, Albany Co., N. Y.

FOR SALE.—I have 500 pounds of honey that I have just extracted. What am I offered?
P. N. REITZELL, Milford, Kosciusko Co., Ind.

FOR SALE.—I have about 1300 lbs. extracted honey, good quality, which I will sell for 9 cents per lb., and about 200 lbs. comb honey in 1-lb. sections, for 18 cents per lb. Samples of extracted honey, 4 cents. H. M. MOYER, Hill Church, Berks Co., Pa.

DADANT'S FOUNDATION FACTORY, WHOLESALE and RETAIL. See advertisement in another column.

HONEY.

We advise bee-keepers not to sell before getting our high prices. State quality, quantity, and style of packages; send samples of extracted, with sender's name marked on same.
F. G. STROHMEYER & CO.,
18-21db **122 Water St., New York.**
☞In responding to this advertisement mention GLEANINGS.

WANTED.—To purchase one to three thousand pounds choice white-clover honey in one-pound sections. Crates to average about 20 pounds each. J. T. CARSON, 18-21db
325 W. Main St., Louisville, Ky.

DADANT'S FOUNDATION FACTORY, WHOLESALE AND RETAIL. See advertisement in another column. 3btfd

SPECIAL NOTICES.

LETTUCE IN NOVEMBER.

WE are just now marketing perhaps the finest lettuce we ever raised, both Grand Rapids and Henderson's New York. The former is the more handsome of the two; but the crisp solid heads of the New York, like little heads of cabbage, are more toothsome. Both kinds were from plants that came up where we raised our lettuce seed, so we can not tell exactly when the seed was planted.

SEED POTATOES FOR 1889.

THE cellar under the building where our market wagon is loaded up is now pretty nearly full of beautiful potatoes—Early Ohio, Early Pearl, Lee's Favorite, and Empire State. These four are my choice; and for immediate orders we can furnish best selected at 75 cents per bushel; second quality, 50 cents per bushel. The second quality are small potatoes, potatoes that are scabby, and punched by the digging-fork. They may be just as good, but they do not look as handsome. Of course, we shall ask more for our seed potatoes after they have been wintered over. Demand and supply will have to decide how much more.

GLEANINGS
IN
BEE CULTURE.
DEVOTED·TO·BEES·HONEY·&·HOME·INTERESTS.
F.A. Whiting

Vol. XVI. **NOV. 1, 1888.** **No. 21.**

TERMS: $1.00 PER ANNUM, IN ADVANCE; 2 Copies for $1.90; 3 for $2.75; 5 for $4.00; 10 or more, 75 cts. each. Single number, 5 cts. Additions to clubs may be made at club rates. Above are all to be sent to ONE POSTOFFICE.

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PLACING BEES IN THE CELLAR.

FRIEND DOOLITTLE TELLS US ABOUT AN INGENIOUS HARNESS FOR DOING THE WORK.

I AM asked to give an article on the above subject; and as the asker puts his query in the shape of several questions, I think it best to answer them by number, in the order they are put. First, he says, "I should like to know how I can place the bees in the cellar without disturbing them." This is nearly an impossibility, as far as not arousing them at all is concerned, for bees are sensitive to the least movement of their home, and, no matter how still it may be done, if done times enough the result always is a restless colony. But, practically speaking, bees can be set in the cellar without disturbance, or, in other words, not be disturbed enough so that it is noticeable, or to do any harm. In fact, I am not sure that a disturbance, so great as to cause them to come out all over the front of the hive after they are in the cellar, does any harm, yet I prefer not to so disturb them. I have two ways of carrying the bees to the cellar; one of which is, to get a strap of the harness-maker, or otherwise, long enough to go over my shoulders, and reach the cleat that goes around the top of the hive, or the hand-holes, if cleats are not used, so that the hive may be held up in about the position that it would naturally be when carried in the hands. Now get two large snaps, such as are used on the breast-straps of heavy harnesses, and have them sewed, one on each end of the strap. After this is done, take out the tongues, or snap part, of each, and file the projecting hook part of the snaps to a sharp point, when your strap is ready. On going to the hive, throw the strap over the shoulders, and, on stooping down, hitch the sharp points of the snaps into the cleats, or hand-holes, of the hive, and straighten up, thus lifting the hive by the shoulders, instead of the arms. With the hands, keep the hive away from the body, and thus you can carry it as still as you please.

The other way, and the best one for all not physically strong, is to get one of the spring wheelbarrows that friend Root sells, and on this place a sawdust cushion, such as is used over the hives in winter; or, in the absence of this, put on several thicknesses of old carpet, or horse-blankets, and on this set the hive, when it can be wheeled right into the cellar, if the cellar is built as it should be, or to the cellar-door, in any event. In this way no serious disturbance should be caused, if set on and off the wheelbarrow as they should be.

Second, he says, "I want to raise them an inch off the bottom-board." This is as it should be, only, instead of an inch, I prefer that the distance be two inches, or, better still, the whole height of the hive. By this, I mean to let the bottom edges of one hive rest on the top edges of two other hives, so that there is an open space, the size of a hive, under each hive except the bottom ones. To explain more fully: I first carry into the cellar some bottom-boards, placing them on the cellar bottom nearly as far apart as the width of a hive. On these bottom-boards I place a two-inch rim, and on these rims I place the first tier of hives, which leaves the hives a little too close for a hive to stand between them. Now, in setting in the next tier, they are set on the other hives, so as to come over this space between the hives below, they resting on the edges of the hives below, as I said at first, the next tier sitting over the empty spaces between the last, and so on till the top of the cellar is reached. To keep the dead bees, etc., from soiling the cushions and hives below, newspapers are spread over them before the next tier is set on top. I believe this is something similar to the way friend Boardman winters his bees. In any event, I like the plan very much.

Third, he asks, "Is it best to carry them in in the day time or after dark?" As to this matter, I do not know that it makes any difference with the bees. The only thing to be considered is the convenience of the operator and the prospect of what the weather will be on the following day. I have frequently carried in my bees on a moonlight evening, when I feared it might rain the next morning, for I consider it a great advantage to have the hives set in the cellar when dry. At other times I have risen at 4 o'clock in the morning and set the bees in before daylight, getting them in just as it was commencing to rain; still, the most of the setting-in has been done by daylight, this having the advantage as far as seeing is concerned.

Fourth, he asks, "Should the weather be cold or warm, when the bees are set in?" I used to think that the weather should be cold, in order that the bees need not fly out of the hive if they were disturbed, fearing that they would disturb easier in warm weather than in cold; but after an experience of the past five years, I now say, set them in when the outside air is nearly or of the same temperature of that in the cellar, if possible, and never when the hives are full of frost, and frozen down, if it can be avoided. Where hives are frozen down to the bottom-boards, and the outsides of them covered with snow and ice, it is the worst time possible to carry them in; while getting them in at such a time without disturbing them is out of the question, for each hive will come up from the bottom-board with such a shock that all the bees in the hive are at once aroused. The proper temperature in which to set them in is from 35 to 50°; but as this can not always be obtained, from 30 to 35° will do very well.

In closing, I will say that the time of year in which to set bees in the cellar is from October 25th to November 20th, according to latitude, and not in December, as used to be advocated.

G. M. DOOLITTLE.

Borodino, N. Y., Oct. 16, 1888.

Well done, old friend. I have thought of a sort of neckyoke, or wire, to put over my shoulders, but I never before thought of having something made of leather just right. From what experience I have had I am sure it would be worth all it cost to me to put 100 colonies in and set them out a single time. The wheelbarrow is tiptop, but you have to lift the hives from the wheelbarrow to their places. If I understand it, your arrangement for placing the hives is like the one figured on page 90, in our issue for Feb. 1st, *a la* Boardman. It has always seemed to me, however, that the bees would get out of their hives a great deal more where the whole bottom of the hive was taken away entirely. I like your plan of putting a newspaper on top of the hive, just underneath, to prevent soiling. At our last convention, reports favored strongly putting the bees away as soon as October.

HEART'S-EASE HONEY.

ALSO TUPELO HONEY IN FLORIDA, ETC.

DEAR MR. EDITOR:—I am more than willing to take back what I said about the heart's-ease honey. My friend J. A. Green, of Dayton, Ill., thinks it quite a mistake to call this smartweed, and I guess he is right. The "heart's-ease" looks much like the smartweed, though the flower is brighter, and the leaves are not pungent. It seems that there are two species of this heart's-ease—*Polygonum Pennsylvanicum* and *P. Persicaria*, while the real smartweed, which causes the mouth to smart when we chew the leaves or stems, is *P. acre* which grows from two to four feet high, and *P. hydropiper*, which grows from one to two feet high. Both of these grow on low wet soils. The other two species of the heart's-ease grow on uplands and bear rose-purple flowers which are very pretty. *P. Pennsylvanicum* grows from one to three feet high, and *P. Persicaria* only one foot high. This last is introduced from Europe.

Surely heart's-ease is a very appropriate name, especially this year, for these two plants. The only possible objection to it is, that it is often applied to violets or pansies, though this use of it is not so common but that we may use it safely, I think, for this polygonum.

TUPELO HONEY.

I was very glad that Mr. J. Y. Detwiler was present from Florida to speak a good word for the black-mangrove honey, and very glad that the North American Association voted unanimously to lend its influence toward having this excellent honey reported under its own name as black-mangrove honey. I believe Mr. Muth said at the Cincinnati meeting that he knew of no better honey than this from the mangrove of Florida. Those of us who have tested its qualities will all coincide that, for excellence of flavor as well as for appearance, it ranks with clover and basswood. Surely, then, it is due the Florida bee-keepers that this be quoted in the market reports as black-mangrove honey.

I now have evidence that this is not the only honey from Florida that is No. 1 in quality. I have just received from J. L. Clark, Apalachicola, Florida, some very excellent honey, which he sends under the name of ogeechee-lime honey. This honey is white, and of most excellent flavor. Mr. Clark sends a twig of the tree, which furnishes the nectar for this honey. The tree is from 30 to 50 feet high. The leaves are of the form of apple-leaves, but smaller, and glisten as if waxed. They form tufts at the end of the twigs. The twigs also bear berries which are blue and sour, but not edible. This tree is *Nyssa multiflora*. The common name is tupelo, or sour gum. I like this name tupelo, and suggest that we call the honey tupelo honey. I am sure tupelo honey will equal mangrove in giving Florida a reputation for first-class honey. These dry seasons are surely doing one thing: they are showing us the sources of our honey.

Mr. F. J. M. Otto, of Sandusky, O., who complained of some insect-enemy to his clover seed, has sent me specimens. They are bright red, and long, narrow, sprightly insects, quick to dodge about the clover seeds. They are thrips, and are so common, as I have observed for years, even in thrifty cloverheads, where the seed is very sound and productive, that I doubt if they do very much damage. Last week, while I was in Columbus, Ohio, I learned that the clover-root borer, *Hylastes trifolii*, was doing great injury to the clover in Northern or Northeastern Ohio. May it not be that it is this beetle that has caused the damage to which Mr. Otto refers? I only offer the suggestion, that those interested may be on the lookout.

I have received from M. A. Kelley, Milton, W. Va., a request to name and comment upon a composite plant, which he has sent me, in GLEANINGS. He says it does not grow in his neighborhood, but that it has an excellent repute as a honey-plant where it does grow. This plant is new to me. It is closely related to *bidens*, or "beggar-ticks." It is *Verbesina Siegesbeckia*, or crown-beard. So many of the wild sunflowers and other composite plants of the great order Compositæ are valuable honey-plants, that it is not surprising to find another. From the character of this plant, and its relationship, we should expect that it would produce nectar. A. J. COOK.

Agricultural College, Mich.

HONEY STATISTICS

FROM ALL PARTS OF THE UNITED STATES.

In order to read understandingly the reports given below, it will be necessary to observe the following points: First, the State is given; then next in their order are the names of the reporters, with their respective postoffices. To indicate locality, the usual abbrevations are used—N., S., E., and W., for north, south, east, and west; N. E. for north-east, etc. The letter C indicates the word "central;" E. C., east central, etc. In the following list, the first figure represents the month, and the second figure the date at which the report was rendered. The small letters, a, b, c, d, etc., indicate the answers to the questions propounded in questions a, b, c, etc., just below

THE accompanying statistics give a decidedly better showing than those which appeared in our issue for July 15th. This is due largely if not altogether to the fall crop, which in most sections of the country was good. The questions to which our correspondents reply are as follows:

(*a*) *What is a good quality of comb honey retailing at?*

(*b*) *What is a good quality of extracted honey selling at?*

(*c*) *What per cent of an average crop of honey, including fall crop, have you secured?*

(*d*) *What is the average quality of the honey; i. e., good, fair, poor, etc.?*

(*e*) *Has the season so far with you been good, average, fair, or poor?*

(*f*) *How does it compare with last season?*

(*g*) *Have you been obliged to feed?*

(*h*) *If so, about how many pounds per colony on an average?*

ALABAMA.

W. P. W. Duke, Nettleborough. S. W. 10-5.
a. 15. b. 10. c. Full crop. d, e. Good. f. Better. g. No.

J. M. Jenkins, Wetumpka. C. 10-1.
a. 15. b. 10. c. 100. d. Fair. e. Average. f. Better. g. No. h. ——.

ARKANSAS.

W. H. Laws, Lavaca. W. C. 10-13.
a. 16⅔. b. 15. c. 80. d Best white. e. Good. f. Better. g. No, emphatically. h. 000.

ARIZONA.

Jno. L. Gregg, Tempe. C. 10-4.
a. 9. b. 8½. c. 50. d. Fair. e. Poor. f. Not so good. g. No.

CALIFORNIA.

J. P. Israel, Olivenhain. S. 10-20.
a. 20. b. 10. c. 33. d. ½ white, ½ amber. e. Poor. f. No crop in 1887. g. No.

Wm. Muth-Rasmussen, Independence. E. 10-9.
a. 12½. b. 8½ in bulk. c. 100. d. Fair. e. Average. f. Better for quantity, poorer for quality. g, h. No.

R. Wilkin, San Buenaventura. S. W. 10-9.
a. 15 to 20. b. 7 to 10. c. 25. d. Good. e. Poor. f. Not so good. g. No. h. 0.

W. W. Bliss, Duarte. S. E. 10-9.
a. 13 to 14. b. 4 to 6. c. 50. d. Fair. e. Fair. f. Some better. g. No. h. 0.

G. W. Cover, Downieville. N. E. C. 10-10.
a. 20. b. None in market. c. 25. d. Fair. e. Poor. f. Better. g. No. h. 0.

CONNECTICUT.

Daniel H. Johnson, Danielsonville. E. 10-1.
a. 25. b. 20. c. 5. d. Good. e. Poor. f. Much poorer. g. No. It will not pay.

R. M. Wilbur, New Milford. 10-10.
a. 20. b. Little here. c. Half crop. d. Good. e. Fair. f. As good. g. Yes. h. 5 to 10 pounds.

Lewis Speny, Hartford. 10-1.
a. 20 to 25. c. About 33. d. Good. e. Fair. f. Some better. g. No.

DAKOTA.

Thos. D. Lewis, Cando. N. 10-13.
No bees. None near here. Bees all destroyed in the flood of '88.

DELAWARE.

S. W. Merritt, Dover. 9-30.
a. 25. b. 12. c. 60. d. Good. e. Fair. f. Better. g. No.

FLORIDA.

John Y. Detwiler, New Smyrna. E. C. 10-9.
a. 15, no demand. b. 8 to 10. c. 45. d. Good. e. Fair. f. Better. g. No. h. Hives full of honey at close of season.

J. L. Clark, Apalachicola. W. 10-5.
a. 10. b. 7½. c. 100. d. Good. e. Good. f. Average. g. No. h. We never feed.

GEORGIA.

T. E. Hanbury, Atlanta. N. 10-5.
a. None sold here. b. None offered. c. 25. d. Fair. e. Poor. f. Half an average. g. Yes, for winter stores a few colonies. h. Fifteen and twenty pounds to those fed.

J. P. H. Brown, Augusta. E. C. 10-2.
a. 15 to 20. b. 10 to 15. c. Average. d. Good. e. Good. f. Better. g. A few in spring. h. 6 or 8 lbs. sugar.

Walter McWilliams, Griffin. W. C. 10-6.
a. 28 to 30. b. 22. c. 90. d. Fair. e. The best in four. f. Far better. g. Never did. h. 0.

R. H. Campbell, Madison. C. 10-3.
a. 15. b. 8. c. 100. d. Good. e. Good. f. Much better. G. No.

ILLINOIS.

Frank Howard, Fairfield. S. 10-6.
a. 15. b. None. c. 35. d. Good. e. Poor. f. Some better. g. No.

F. W. Goodrich, Bloomington. C. 10-1.
a. 15. b. 10. c. 35. d. fair. e. Poor. f. Some better. g. No.

Mrs. L. Harrison, Peoria. C. 10-3.
a. 25. b. 15 to 20. c. One-tenth. d. Fair. e. Very poor. f. About the same.

Dadant & Son, Hamilton. W. C. 10-2.
a. Fall honey 15 to 18, no clover. b. Fall honey 10. c. 20. d. All fall honey, good quality. e. Poor. f. A little better. g. The weak swarms. h. Very little.

C. C. Miller, Marengo. N. 10-6.
a, b. None selling. c. 17. d. Good. e. Poor. f. Much better. g. No.

INDIANA.

I. R. Good, Nappanee. N. 10-2.
a. None. 18. b. None. c. 5. d. Poor. e. Poor. f. Not so good. g. No.

J. A. Burton, Mitchell. S. C. 10-9.
a. 20. b. 10. c. 65. d. Poor. e. Fair. f. Better. g. No.

T. H. Kloer, Terre Haute. W. C. 10-10.
a. 25. b. 15. c. 50. d. Good. e. Fair. f. Better. g. Yes. h. 6 pounds.

IOWA.

Z. T. Hawk, Audubon. W. 10-1.
a. 20. b. None. c. 90. d. Good. e. First poor, last good. f. Better. g. Very little.

Oliver Foster, Mt. Vernon. E. 10-1.
a. 18. b. 10. c. 50. d. Good. e. Fair. f. Much better. g. No. h. None since June.

J. W. Bittenbender, Knoxville. S. E. 10-1.
a. 18. b. 12½. c. 40. d. Fair. e. Poor. f. 20 per cent better. g. No.

Eugene Secor, Forest City. N. 10-1.
a. 16. b. 10. c. 50. d. Fair. e. Fair. f. some better. g. No.

J. M. Shuck, Des Moines. C. 10-1.
a. None retailing. b. None on this market. c. None. d. None. e. Very poor. f. Worse, if possible. g. No. Bees have plenty.

KANSAS.

J. B. Kline, Topeka. E. C. 10-3.
a. Case, 18 to 20. b. Case, 8 to 10. c. 75. d. Good. e. Good. f. Better. g. A little.

KENTUCKY.

D. F. Savage, Hopkinsville. S. W. 10-3.
a. 20. b. 10. c. 25. d. Good. e. Poor. f. Inferior. g. No.

J. P. Moore, Morgan. N. 10-13.
b. 12½. c. 50. d. Poor. e. Fair. f. Some better.

John S. Reese, Winchester. C. 10-2.
a. 20. b. 15. c. 25. d. Good. e. Poor. f. Not so good. g. No.

LOUISIANA.

P. L. Viallon, Bayou Goula. 10-2.
a, b. No market. c. No surplus to speak of so far. d. Fair. e. Poor. f. Last season was fair. g. Not yet.

J. W. K. Shaw, Loreauville. S. C. 10-5.
a. None offering. b. 4 to 4½. c. 60. d. Fair. e. Fair. f. Not as good. g. No.

MAINE.

J. Reynolds, Clinton. S. E. 10-9.
a. 25. b. 20. c. 0. d. Poorest. e. Poorest. f. 0. g. Yes. h. 4 pounds.

S. H. Hutchinson, Mechanic Falls. 10-1.
a, b. None. c. None. e. Poor. f. No better. g. Expect to. h. 10 pounds.

MARYLAND.

S. Valentine, Hagerstown. N. W. 10-3.
a. 20. b. 15. c. 25. d. Good. e. Poor. f. Some better. g. No.

MASSACHUSETTS.

E. W. Lund, Baldwinsville. N. C. 10-3.
a. 20. b. None in market. c. 60. d. Good. e. Fair. f. Little better. g. No.

A. A. Sanborn, Westfield. 10-4.
a. 20. b. None. c. 30. d. Good. e. Good. f. Better. g. No.

J. E. Pond, No. Attleboro. S. E. 10-2.
a. 25 to 30. b. 18 to 25. d. Good. f. Very well indeed. g. Yes. h. About 15 pounds.

Wm. W. Cary, Colerain. N. W. 10-5.
a. 15 to 20. b. 12 to 15. c. 10. d. Good. e. Very poor. f. About the same. g. Yes. h. 10 to 15 pounds.

MICHIGAN.

James Heddon, Dowagiac. S. W. 10-1.
a. 20. b. 10 to 15. c. 15. d. A No. 1. e. Very poor. f. Worse. g. No.

A. J. Cook, Lansing. C. 10-1.
a. 18. b. 10. c. Less than 10. d. Poor. e. Very poor. f. Not so good. g. No.

H. D. Cutting, Clinton. S. W. 10-1.
a. 20. b. 16. c. 20. d. Good. e. Poor. f. 50 per cent less. g. Very few. h. 5 to 10.

George E. Hilton, Fremont. W. 10-4.
a. 15. b. 10. c. 30. d. Fair. e. Poor. f. Not as good. g. No.

T. F. Bingham, Abronia. S. W. 10-1.
a. 20. b. 8 to 10. c. Failure. e. Very poor. f. Poorer. g. Some colonies.

MINNESOTA.

A. F. Bright, Mazeppa. E. 10-4.
a. 20. b. 10. c. 80. d. Good. e. About average. f. About the same. g. No.

W. W. Hamilton, Lakefield. S. W. 10-8.
a. 16 to 20. b. None. c. 50. d. Good. e. Poor. f. Not so good. g. No.

J. H. Johnson, East Chain Lakes. S. C. 10-8.
a. 16 to 18. b. None. c. About 10. d. Fair. e. Poor. f. Not so good. g. No.

N. P. Aspinwall, Harrison. C. 10-1.
a. 25. b. 15. c. 75. d. Good. e. Fair. f. Not so good. g. No.

D. P. Lister, Lac Qui Parle. W. C. 10-2.
a. 25. b. 12½. c. 50. d. Good. e. Good. f. Fair. g. No.

MISSOURI.

Jno. Nebel & Son, High Hill. E. C. 10-4.
a. 18. b. 12. c. 50. d. Good. e. Fair. f. 75 per cent better. g. No.

Chas. L. Gough, Rock Spring. E. C. 10-4.
a. 15. b. 10. c. 30. d. Fair. e. Very poor. f. Better. g. No.

James Parshall, Skidmore. N. W. 10-2.
a. 15 to 18. b. 10. c. About 30. d. Fair. e. Poor. f. A great deal better. g. No.

E. M. Hayhurst, Kansas City. W. C. 10-5.
a. 25. b. 20. c. 35. d. Good. e. Poor. f. Better. g. Yes. h. 15 pounds.

S. E. Miller, Bluffton. E. C. 10-5.
a. 20. b. 7½ to 8. c. 33⅓. d. Good. e. Poor. f. Much better. g. No.

NEBRASKA.

J. W. Porter, Ponca. N. E. 10-1.
a. 20. b. 15. c. Don't know. d. Comb poor, ext'd good. e. Poor for honey. f. 50 per cent. g. Yes, before basswood. h. 12 pounds.

F. Kingsley, Hebron. S. C. 10-4.
a. 20. b. 15. c. 100. d. Good. e. Good. f. Some better. g. No.

Jerome Wiltse, Falls City. S. E. 10-9.
a. 20. b. 10 to 15. c. 125. d. Good. e. Better, f. Much better. g. No.

NEVADA.

E. A. Moore, Reno. W. C. 10-6.
a. 15 to 25. b. 16. c. About 150. d. Very fine. e. Very good. f. 100 per cent better. g. No.

NEW HAMPSHIRE.

S. F. Reed, No. Dorchester. C. 10-5.
a. 25. b. 15. c. 25. d. Poor. e. Very poor. f. Not so good. g. Yes. h. 5 pounds.

C. E. Watts, Rumney. C. 10-12.
a, 25. b. About same. c. Only one colony. d. Good. e. Poor. f. Some better. g. No.

Mrs. L. A. Freeman, Lancaster. N. W. 10-19.
a. 20. b. None. c. 50. d. Fair. e. Poor. f. Better for honey. g. No. Some have.

J. A. Bachelder, Keene. S. 10-5.
a. 25. b. None. c. 75. d. Fair. e. Fair. f. Better g. No.

NEW JERSEY.

J. D. Coles, Woodstown. S.W. 10-1.
a. 20. b. 18. c. None. d. Good. e. Average. f. Some better. g. No.

Watson Allen, Bernardsville. N. C. 10-5.
a. 16 to 18. b. 12. c. About 30. d. Good. e. Poor. f. Some better. g. No.

NEW YORK.

Geo. H. Knickerbocker, Pine Plains. S. E. 10-3.
a. 20. b. 12 to 15. c. 75. d. Extra fine. e. Average. f. Better. g. No.

F. Boomhower, Gallupville. E. C. 10-2.
a. 12 to 20, b. 8 to 10. c. About one-half crop. d. Good. e. Poor. f. About the same. g. No.

G. M. Doolittle, Borodino. C. 10-2.
a. 15. b. 10. c. 95. d. Good. e. Average. f. About the same. g. No.

P. H. Elwood, Starkville. C. 10-9.
a. 16 to 18. b. 10. c. 50. d. Early good, late poor. e. Poor. f. Much poorer. g. Yes. h. 5 pounds.

NORTH CAROLINA.

Abbott L. Swinson, Goldsboro. E. 10-5.
a. 12½. b. 7. c. Average. d. Good. e. Average. f. Slightly poorer. g. I will be. h. Probably 10 pounds.

OHIO.

Dr. G. L. Tinker, New Philadelphia. N. E. 10-9.
a. 20. b. 15. c. 10. d. Fair. e. Poor. f. About the same. g. Yes. h. 8 pounds.

Dr. H. Besse, Delaware. C. 10-8.
a. 25. b. 14. c. About one-sixth. d. Good. e. Poor. f. Rather better. g. No, only by taking from those that have to spare. h. 5 to 6 pounds in the comb.

S. A. Dyke, Pomeroy. S. E. 10-8.
a. 18. b. None. c. 75. d. Fair. e. Fair. f. Better. g. Yes, 6 pounds.

Chas. F. Muth, Cincinnati. S. W. 10-6.
a. 20. b. 15. c. 10. d. Fair. e. Poor. f. Some better. g. Yes, in summer. h. 5 pounds.

A. B. Mason, Auburndale. N. W. 10-6.
a. 20 to 25. b. 15. e. Poor. f. Not so good. g. Yes. h. 5 lbs.

OREGON.

George Ebell, Baker City. E. 10-6.
a. 30. b. 20. c. 50. d. Fair. e. Fair. f. Better. g. No.

PENNSYLVANIA.

S. W. Morrison, Oxford. S. E. 10-1.
a. 25. b. 12. c. 75. d. Very good. e. Average. f. Better. g. No.

M. H. Tweed, Allegheny City. W. 10-4.
a. 20. b. 12.

Geo. A. Wright, Glenwood. N. E. 10-2.
a. 15. b. 12½. c. 25. d. Extra. e. Poor. f. Not as good. g. Yes. h. 1½ lbs. Most colonies had enough.

C. W. King, Emlenton. N. W. 10-5.
a. 20. b. None. c. 10. d. Good. e. Poor. f. Poorer. g. No.

RHODE ISLAND.

A. C. Miller, Providence. E. 10-1.
a. 25. b. 25. c. 5. d. Good. e. Poor. f. Better. g. Yes. h. 10 pounds.

SOUTH CAROLINA.

J. D. Fooshe, Coronaca. 10-8.
a. 10. b. 8 to 10. c. 50. d. Fair. e. Fair. f. Quantity same, quality better. g. No.

H. T. Cook, Greenville. 10-8.
a, b. None. c. Don't know. d. Fair. e. mostly poor. f. Very well. g. No.

W. J. Ellison, Stateburg. C. 10-3.
a. 15. b. $1.25 per gallon. c. 100. d. Good. e. Good. f. About the same. g. Nuclei only.

TENNESSEE.

W. H. Greer, Paris. N. W. 10-8.
a. 15. b. 10. c. 100. d. Good. e. Average. f. Much better. g. No.

TEXAS.

B. F. Carroll, Blooming Grove. 10-13.
a. 15. b. 12½. c. 100. d. Spring crop very good, fall poor. e. Good. f. 100 per cent better. g. Yes. h. 15. lbs.

J. E. Lay, Hallettsville. S. E. 10-1.
a. None. b. 10. c. Fall crop not yet secured. d. Good. e. Fair. f. Better. g. No.

J. P. Caldwell, San Marcos. S. W. 10-3.
a. 10. b. 8. c. 50. d. Fair. e. Fair. f. Much better. g. No.

L. Stachelhausen, Selma. S. C. 10-4.
a. 12½. b. 8 to 10. c. 100. d. Fair. e. Average. f. 3 to 1. g. Never feed.

W. A. J. Beauchamp, Orange. S. E. 10-6.
a. 15 to 20. b. None. c. 100. d. Good. e. Poor. f. Over average. g. No.

VERMONT.

A. E. Manum, Bristol. W. 10-12.
a. 20. b. 10. c. 1-16. d. Good. e. Poor, f. ¼ as much. g. Yes. h. 20 pounds.

Howard J. Smith, Richford. N. C. 10-7.
a. 25. b. 15. c. 25 lbs. d. Fair. e. Poor. f. About the same. g. Yes. h. 15.

F. M. Wright, Enosburgh. 10-4
a. 20. b. 15. c. 4. d. Good. e. Very poor. f. Much poorer. g. Yes. h. 20 pounds.

VIRGINIA.

J. W. Porter, Charlottesville. C. 10-1.
a. 18. b. 12½. c. 40. d. Good. e. Poor. f. About same. g. No. h. 20 pounds.

J. C. Frisbee, Suffolk. S. E. 10-4.
a. 16. b 10. c. 35. d. Good. e. Fair. f, Better. g. Fed a few colonies. h. 15 lbs. each to 20 per cent of stock.

H. W. Bass, Front Royal. N. 10-3.
a. 12. b. None. c. 60. d. Good. e. Fair. f. About same. g. No.

James E. Duvalls, Bellefair Mills. E. 10-3.
a. 12½. c. 10. d. Fair. e. Poor. f. Very poor. g. No.

WASHINGTON TERRITORY.

W. J. Frazier, Olympia. N. W. 9-8.
a. 20. b. 10 to 12. c 100. d. Good. e. Average. f About 50 per cent better. g. No.

W. W. Maltby, Port Angeles. N.W. 10-9.
a. None. b. 12½. c. 10. d. Good. e. Poor. f. Some better. g. No.

John H. Goe. Mossy Rock. S. W. 10-12.
a. 18 to 20. b. 8 to 10. c 50 per cent. d. Good. e. Very poor. f. Decidedly poorer. g. No.

WEST VIRGINIA.

J. A. Buchanan, Holliday's Cove. N. 10-4.
a. 20. b 15. c. 0. d. Poor. e Poor. f. Not as good. g. No

Will Thatcher, Martinsburg. W. C. 10-2.
a. 15. b. 10. c. 50. d. 80 per cent is good. e. Average. f. 25 per cent better. g. No.

J. C. Capehart, St. Albans. S. W. 10-1.
a. 20. b. 12½. e. Poor. g. Probably.

M. A. Kelley, Milton. S. W. 10-6.
a. 12½. b. 8⅓; c. 75. d. Poor. e. Fair. f. Worse. g. No.

WISCONSIN.

Frank McNay, Mauston. C. 10-3.
a. 20. b 8. c. 100 per cent. d. Good. e. Average. f Better. g. No.

Joshua Bull, Seymour. E. 10-4.
a. 15 to 18. b. 10. c. 50. d. Good. e. Poor. f. Not so good. g. Yes. h. About 15 pounds.

S. I. Freeborn, Ithaca. S. W. 10-1.
a. 15. b. 8. c. Average. d. Fine. e. Good. f. Much better. g. In spring. h. About 3 lbs.

George Grimm, Jefferson. S. E. 10-3.
a 22. b. 12½. c. 15. d. Good. e. Poor. f. Better. g. Some. h. 5.

E. France, Platteville. S. W. 10-2.
a. 20. b. 10. c. ¼. d. Good. e. Poor. f. Some better. g. No.

WYOMING TERRITORY.

G. G. Mead, Ferris. S. 10-12.
a. 25. b. 15. c. 40. d. Good. f. Some better. g. No.

A summarized statement we find upon calculation stands as follows:

(a) The average price of comb honey throughout the United States is a small fraction over 19 cts. per pound. The average for July 1 was 16 cts. The market is improving some as will be noticed. In some cases it sells as high as 30 cts. In a large number of localities it is sold for 25 cts. In only three or four places does it sell for less than 15 cts.

(b) The average price of extracted honey is a fraction over 12 cts. per pound. Statistics for July 15 showed 11 cts. There seems to be less fluctuation in the price of extracted than of comb.

(c) A trifle over 48 per cent of honey was secured throughout the United States by the reporters, and probably this percentage represents very nearly the proportionate amount secured by bee-keepers as a whole through the country. This is some better than the report in July, by about 25 per cent.

(d) Of those who report in regard to the quality of honey, 66 report good; 32 fair, and only 8 poor.

(e) Of the number who reply in regard to the season, 13 report it to have been good; 44 fair, and 53 poor. If we put those who report *good* and those who report *fair* together, the ratio stands 57 to 53. In other words, in about half the localities the season has been poor; and in the other half, from fair to good.

(f) This season is decidedly better than last; 66 report better; 12 about the same, and 27 worse. At this rate we may expect a tolerably good season next year, if the gradations from worse to better mean any thing.

(g) As to feeding, very little has been done this fall; of those who report, 80 will will not be obliged to feed at all. The remainder, 27, will feed some, but not much.

Comparing this season with the last, we have great reason to be encouraged; and although the reports given refer to individuals largely, yet in the majority of cases they are representative of the locality. If one man in a certain section of the State has had a poor season, those about him will experience pretty much the same state of affairs. There are occasionally exceptions to this rule, but it generally holds true.

WOODEN SEPARATORS.

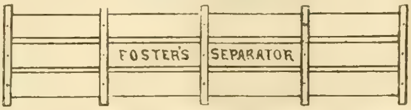
ONE MADE OF SLATS.

FRIEND ROOT:—Allow me to present you with a sample of my new wood separator, which, while it is adapted to any section, is particularly suited to the open-side section. I claim for it the following advantages:

1. It furnishes free communication from side to side.
2. It will not bend nor wrinkle as tin does, nor warp and split as ordinary wooden ones do.
3. It serves as a support for the sections (where the bee-space is used), doing away with the necessity for T rests or other supports under or between the sections (except at ends of case).
4. The lines of propolis resulting from the contact of these supports are thus avoided.
5. No trouble with sections catching on the edge of tins, nor with getting in the last sections.
6. The outside rows of sections can be easily turned to the central part of the case for completion.
7. The cost, I think, will be less than that of any perforated separator yet offered.

I think that, with proper machinery, the material should not cost over half a cent each (wood only), and they can be put up for half a cent or less. They would be cheap, however, at two cents each.

I will explain, that, in using this separator with the adjustable case with a bee-space underneath, there is a support for both separators and sections at each end of the case. Then three of the five separators used have a tin button attached to the lower end of the central standards, each of which supports four of the central sections. These central supports would not usually be necessary, as clamping the case holds the sections quite firmly, and the spring of the separators themselves will take up some shrinkage of sections, and still hold them securely; but it is always best to be on the safe side; and these three tin buttons are more than ample. With a case not capable of being clamped, three tin buttons could be used instead of one.



OLIVER FOSTER.

Mt. Vernon, Iowa.

Friend F., substantially the same thing as your wooden separator was given long ago. In fact, father Langstroth used such an arrangement, and pictured it in the first volume of the *A. B. J.*, page 89, 1861. This was, however, used for making the bees build brood-combs straight and true. I believe your arrangement will do all you claim for it. Perforated wooden separators are, however, in the market at about half a cent each. Yours would be cheap enough at one cent each. With their use, the section might be made all of a size clear around, and I think the arrangement was some years ago used for that purpose. The expense of them has been, I believe, the greatest objection to their use. I will explain to our readers, that each separator requires 3 long pieces of wood and 10 short ones, 12 wire nails being required to clinch them together.

THE HEDDON HONEY-BOARD; PERFORATED ZINC, ETC.

DR. C. C. MILLER TELLS US HOW TO RAISE EXTRA QUEENS IN ANY HIVE, ETC.

ON page 680 Bro. Heddon takes exception to my answer to question 68. The question refers to contraction for extracted honey, and to the use of slatted honey-boards. Mr. Heddon thinks I must have misunderstood the question. Too charitable a conclusion, Bro. H. I understood the question perfectly, I think. Any error in the answer arose from ignorance pure and simple. First, as to the use of the

HEDDON HONEY-BOARD.

In your fling at the close of your article, Bro. H., about opposing and afterward adopting improvements (I wish you wouldn't make such flings), if you mean me, "you're another." You know, I think, that I always considered that honey-board of *very great value*, and that I always gave you full credit for it. As I admitted in my answer, I had had no experience in the use of honey-boards for extracting. Since answering the question, I have had experience with several colonies. More than a year ago I got 40 queen-excluding honey-boards, for the sake of making an experiment. They were made without any bee-space, simply to separate the upper and lower stories of a ten-frame Langstroth hive. Like many another, the experiment was given up as not feasible, and the excluders were not used. This year I used them for the first; and I must say, that, if I allowed swarming, and worked for either comb or extracted honey, I never would be without slat honey-boards; and if for extracting, they should be queen-excluding. For comb honey, I have used the Heddon honey-boards for years, and I have never seen the need of making them queen-excluding. for not one section in a thousand, I think, will be troubled by having the queen enter, and the perforated zinc is objectionable on account of expense and on account of the hindrance that I think it must be to the workers passing through. But with an upper story of combs for extracting, the case is different. The queen is about sure to go into the upper story; and it is so much nicer to have that story at all times free from brood. Then the advantage, of which Mr. Heddon speaks, of preventing comb-building between the upper and lower frames, is no small item. Indeed, it is worth while to use it for that purpose alone, although it will prevent comb-building between the two stories, just as well without the perforated zinc. But for other reasons, I should always want the zinc. The first use I made of the queen-excluder was to preserve a lot of brood-combs. Above the excluder I put four stores of empty combs having one or two frames of brood in the upper story. Thus several colonies, weaker than the average, during July and August, took care of 40 or more empty combs each, keeping them entirely free from worms. I found it very convenient to have an excluder on one or more of the weaker colonies, having an empty story above, and into this I could put, for safe keeping, any frames of brood or honey that I wanted taken care of a few hours or a few days. I found this very convenient in forming or building up nuclei, or in strengthening weak colonies. Taking frames of brood from different hives, as I found they could be spared, I put them in one of these upper stories; and then whenever I wanted to use one I could take it, bees and all, without looking for any queen. Perhaps I ought to tell of

A NEW MODE OF INCREASE

that came to me in using one of these excluders. Four stories were piled above the excluder, eleven combs in each, empty, except two frames of brood, these two frames being at the two sides of the upper story. It was a long way for the bees to travel from this fifth story to the entrance, and I was not surprised to find that some of the bees were using as an entrance a hole in one corner of one of the upper stories, where the joint had sprung apart. Little attention was paid to them for five or six weeks, when I went to take away the empty combs. I found plenty of brood in the upper story, and a queen which the bees had raised there. The old queen was all right in the lower story, and I separated the two colonies by putting the upper one in a regular hive, and placing it on the top of the other, its entrance as near as I could conveniently place it to the place of their accustomed entrance. To-day, Sept. 12, they are two strong colonies. I had had some previous experience, nearly in the same line; and although bees can not always be depended on to raise a queen under similar conditions, I think they will often, if not generally, do it. Put a queen-excluder over a colony, on this put a second story of combs for extracting, then a third story of frames with one or more frames of brood, and a hole they can use as an entrance, and, in the majority of cases, I think you will find a young queen laying in three or four weeks, without having in the least interfered with your crop of extracted honey. C. C. MILLER.

Marengo, Ill.

Well done, old friend. So far as I can see, the invention is indeed new and novel, and fills the bill exactly. If you have a surplus of extra combs, you can make every colony, almost, raise queens, and still go on with the ordinary duties of the hive. I did pretty nearly the same thing years ago, and so I know exactly how it works. I should be a little afraid, if the matter were not watched, however, that this extra entrance might let in robbers. Suppose a big flow of honey, however, should cause the bees to fill these extra combs all up solid with honey, and suppose, too, we want to raise comb honey instead of extracted. I think it might be arranged in the latter case; but this extra hive on top would have to be lifted off and on in working for surplus.

HONEY VINEGAR.

VALUABLE HINTS ON MAKING.

IN the April 1st No. of GLEANINGS, 1887, page 267, there are two articles on making honey vinegar. I have made and sold honey vinegar for the last four or five years, but I have never used good salable honey in its manufacture. I sell about 100 gallons per year to my neighbors, and the reputation of my vinegar is such that some of my customers have driven out to my apiary, three miles from Brandon, rather than buy vinegar at the stores.

When I read the articles mentioned, I noticed that there was quite a difference of opinion between the two authors. Since then I have been experimenting. I built what I call my vinegar-factory. It is not a very large or pretentious building, but it is able to turn out 200 gallons of No. 1 vinegar in a season. The size of the building is 5x7 ft. high on the south side, and 6 ft. on the north, with shed roof sloping to the north. Roof and sides are all painted dark brown. There should be no shade to prevent the sun from shining on the building all day long. The sides are made of shiplap, which gives plenty of ventilation, and is bee-proof. There is a window 2x7 ft., extending across the south side 4 ft. from the bottom. The building cost about $6.00. On the inside there is a shelf 20 inches wide, 1 ft. high, on which to set three barrels so that their tops will be even with the bottom of the window, and to permit the vinegar being drawn through faucets near the bottom of the barrels. The shelf is supported on stakes driven in the ground. There is a door in the north side, wide enough to admit a barrel. The barrels are covered with a piece of cheese-cloth, and on that a cover is made of thin boards.

For convenience in describing operations we will number the barrels in the vinegar-house 1, 2, and 3. I generally have about a barrel of partly made vinegar in the fall, which I keep in the cellar during the winter. In the spring, when the weather becomes warm, I put about half of this in barrel No. 3, one-third in No. 2, and the remainder in No. 1. When I have any waste honey or washings from honey-cans, or candied honey soaked from combs, it is put in No. 1. I test the sweetened water in No. 1 with the 35-cent hydrometer. When it sinks to 11 on the scale it is about right when it is not soured, and contains about 2 lbs. of honey to the gallon. If the sweetened water is soured some, the hydrometer should sink to 8 or 9. Good vinegar tests about 3 on the scale of the hydrometer. When that in No. 3 becomes good vinegar, it is drawn off and put in the cellar, and that from No. 2 is transferred to No. 3, with enough from No. 1 to fill the barrel about half full. No. 2 is filled half full from No. 1. To obtain the best results, the barrels should be kept about half full. If the vinegar in the cellar is kept cool, and the barrels bunged tight, mother will not form on it, and it will keep almost any length of time. One pound of honey will make one gallon of vinegar, as good as most of the cider and white-wine vinegar that is sold; but to make strong No. 1 vinegar it requires 2 lbs. of honey to the gallon. Most of the honey that I use for making vinegar is the thin honey which I skim from the top of my extracted honey directly after extracting.

Friend Bingham, in his article, says: "I have beautiful candied honey evaporated from such vinegar as I have made and used exclusively in my family for the past 12 years, so you can get your honey out of such vinegar in case you should want honey more than vinegar."

I have evaporated honey vinegar, but I can get nothing but a very strong acid as the result. I think it is generally understood, that the honey is changed to alcohol, and then the alcohol to vinegar. Now, is it a fact that the acid can be changed back to honey? Will some of the friends who understand chemistry enlighten us on this subject?

Brandon, Iowa. G. D. BLACK.

Friend B., your suggestions are exceedingly valuable. If even half of the amount of vinegar which you mention could be sold, it would doubtless pay many of us to have a vinegar-factory, as you term it. I suppose that any vacant room fronting the south could be arranged to answer the same purpose.—Your term "shiplap" is something not familiar to us. Will you explain the word, and give us drawings if necessary? I can not very well see how you get plenty of ventilation without admitting bees, unless you have the openings covered with wire cloth. At the Columbus centennial we saw jars of vinegar made from honey, that looked as clear as pure water. Their price was 20 cts. for a two-pound bottleful. Your suggestions in regard to using the hydrometer are certainly a move in the right direction. There is then no guesswork about it at all. The centennial folks agree with you exactly in regard to the amount of honey needed for a gallon of the best vinegar; namely, two pounds to the gallon. Perhaps the vinegar that friend Bingham spoke of, that could be boiled down so as to produce honey again, was not perfectly turned to vinegar. In fact, I have seen honey vinegar with so much sweet about it that it made very fair lemonade when dissolved in a glass of water. This kind would very likely produce honey when boiled down; for scalding maple syrup, preserves, and other things that have become slightly acid, will expel the acid and make it pure sweet again.

WHY SOME BEE-KEEPERS PREFER BLACKS TO ITALIANS.

JAMES A. GREEN SUMS IT ALL UP.

UNTIL three or four years ago it seemed that the superiority of the Italians over the common bee of our country, variously known as the black, gray, brown, or German bee, was conceded by nearly all who had given them a fair trial, especially in the production of honey as a business. Within that time, though, some of our most prominent honey-producers have declared that they prefer the German race to any other race in its purity, while admitting that a cross between it and the Italian is an improvement. Some of their reasons for this preference are old, while others are the result of new conditions by which all bee-keepers are not influenced. Those who are not, may do well to consider these reasons before deciding to follow the example of their possessors, successful though they may be.

In the first place, I believe that nearly if not quite all who prefer the black bee and its crosses are producers of only comb honey, or, at least, advocate the securing of most of the crop in that shape. That the Italians are superior for extracted honey, is, I think, unquestioned. The apiarist, then, who expects to produce principally extracted honey, need interest himself no further as to the comparative merits of the two races, as it is conceded that the Italians are better for him.

Two points of superiority are broadly claimed for the black bee. First, that it will more readily enter the surplus receptacles, especially if not close to the brood. Probably there is some truth in this, or it would not be so strongly insisted on; but I have never observed any difference worth mentioning; and with proper management I know there is practically none whatever.

Second, it is claimed that the blacks produce whiter comb, which will be more desirable, and in these times of close competition will sell better than that made by Italians. Without stopping to argue whether good taste would prefer a marble white to a white just tinted with cream, I will say that, in my humble opinion, to claim that any honey ever produced by black bees would present a more salable appearance than some I have been taking off within the past few days, made by yellow Italians, is to make a hypercritical distinction which is entirely imperceptible to the general buyer. Of course, there is a difference in this respect. I have had Italians, all of whose honey had to be graded as No. 2, at 2 cents per pound less than that of colonies alongside, just because of its dark and watery appearance, due simply to the way it was capped. Such queens are promptly superseded. Whiteness of comb stands high in the list of qualities for which I am breeding, and its realization is much more desirable than yellowness of bees, though I am working for that too.

The two points referred to are the only ones in which the blacks may be fairly claimed to be superior to the Italians under ordinary management. When we consider their positive defects, the Italians easily bear off the palm under such management. With certain systems of management, though, these very defects of the blacks are so utilized that they become aids to manipulation.

The black bee is easily frightened, and readily driven off the combs by smoke or other means. They are also easy to shake from the combs. In handling "hives instead of frames," a system that must come more and more into use, these qualities are valuable; and, if the frames are not so easily handled as the ordinary style, highly desirable. Their regard for the queen is much greater, and all points of their behavior toward her more marked, making it easier for an expert to judge of the condition of the inside of the hive by the appearance of the outside.

The blacks are not so liable to fill up the brood-chamber with honey, thus crowding the queen. This is a very desirable feature when contraction is practiced. This very quality, though, is apt to bring them out in the fall with an empty brood-chamber. Some consider this an advantage, though I think most would prefer bees that look ahead a little more, and do not require to be fed every fall. Of course, if the fall honey is not suitable for wintering, which is probably the case at some times in some localities, it is best that there should be as little as possible below.

To sum up, if you are producing comb honey exclusively, on a large scale, practicing contraction, handling hives instead of frames, and wintering on sugar, blacks *may* suit you best; but under other circumstances, and for an "all-purpose" bee, the Italian is preferable. **James A. Green.**

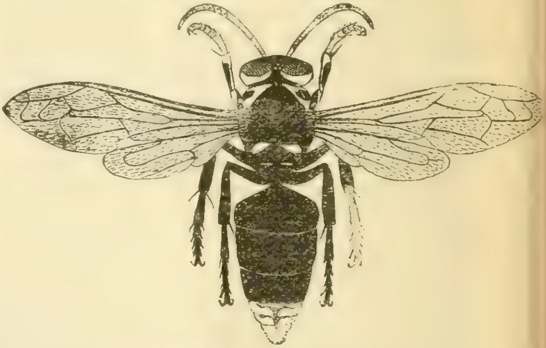
Dayton, Ill., Sept. 25, 1888.

Friend G., I believe you have presented the whole matter about as fairly as it can be, in a few words. I believe our experience here agrees with yours in every point. We had not, however, noticed particularly that it was special colonies that produced the watery-looking honey—that is, comb honey with the liquid clear up against the capping, and the capping so thin and transparent that the honey shows right through it. It really seems too bad to destroy queens that show such apparent judgment and economy in their method of putting the greatest amount of sweets in the smallest compass, and with the least expense. I presume, however, it would not be worth while to attempt to convince the public that this kind of honey is worth the most for table use.

THE WASPS.

ALSO SOMETHING ABOUT THOUSAND-LEGGED WORMS, CORN-BEETLES, ETC.

I HAVE already considered two great families of predaceous insects: The ground-beetles, *Carabidæ*, which, it will be remembered, are usually black beetles, with long legs fitted for running, which are usually found in the ground, or under logs and stones; and the beautiful lady-bird beetles, *Coccinellidæ*, which are small rounded insects, usually with yellow or orange bodies, which are generally dotted with black spots.



VESPA MACULATA.

Another group of insects, which consists of several families, the wasps, are very predaceous, and, by killing other insects, do a vast amount of good. In reply to a correspondent, I recently remarked, on *Vespa maculata* (see Fig.), one of our largest and mort widely distributed wasps. This is the one that makes the large globose paper nests which are so frequently seen attached to limbs of trees, etc. It is enlarged one-half in the figure. I have often seen these and other wasps engaged wholesale in capturing and devouring some of our most destructive insects.

So far as I know, there are only two charges made against the wasps. First, they sometimes do not discriminate to our liking, and attack and kill bees. This, however, is rarely seen in America, and, I think, never in the Northern States. They sometimes alight on the frames while we are working with the bees, and sip a little honey, but not enough to cause any anxiety. The second charge is, that they sting. This is not a very serious one. Wasps, like bees, rarely sting unless molested. Of course, the dread that some feel for wasps, even though baseless, is a ground for complaint. The name hornet, often used to designate wasps, is not much used by entomologists in this country.

MYRIAPODS.

Mr. G. B. Shelton, Brownsville, Pa., sends some cylindrical wormlike animals which he finds in his garden. He wishes to know what they are, through GLEANINGS. They are myriapods, or the so-called thousand-legged worms. They are not properly called wireworms. The wire-worms are, as previously stated, grubs, or larvæ, of our spring, or elater beetles. The true wire-worms have six legs; these myriapods possess from 60 or 70 to two or three hundred. There are two orders of myriapods — the cylindrical vegetable-eating millipeds which have two pairs of legs to each joint, and so two or three hundred legs; and the flat, quick centipeds which have forty to eighty legs. The centipeds are often seen under the bark of old trees, and, when exposed, run rapidly away. The millipeds are slower.

Most people are afraid of myriapods. This is certainly uncalled for, so far as our species are concerned. The millipeds are never poisonous. It is said that the large centipeds of the tropics are poisonous, and that their bite is to be dreaded. I presume this fear, even in the tropics, is largely uncalled for.

So far as I have observed, the millipeds do no serious harm, though some think they injure potatoes and other crops. It is difficult to suggest a remedy for any animals so numerous, and that live scattered through the ground.

Mr. J. R. Reed, Millford, Wis., sends me some beetles which eat the corn in the ear. They commence at the top and eat the hard kernels clear up under the husks. Often there will be a dozen on a single ear. I wish right here to thank Mr. Reed. He sent a dozen beetles wrapped carefully in tissue paper, and all came in perfect condition.

This is *Euphoria inda*, Linn. The body is yellowish brown. It is about half an inch long, and is a broad plump beetle, which, when flying, looks and sounds some like a tired bumble-bee on the wing. Its flight is slow and labored. There are two broods a year. The April beetles are often seen sucking sap from freshly cut maple stumps. The second brood comes in September, and show their good taste by eating into our luscious Barnard and Crawford peaches, our rich fall pippin apples, and Seckle and Bartlett pears. It seems that they also have a tooth for green corn. It is not known what the grubs, or larvæ, feed on, as, so far as I know, the life-history of this insect has not been worked out. I am sorry to say that I can not give any suitable remedy. I can offer a word of encouragement, however. I think it nowise likely that these beetles will be present next year, to do any great harm. A. J. COOK.

Agricultural College, Mich.

Now, friend Cook, I shall not like it a bit if you tell us we must not say "hornets" any more. Everybody knows that a wasp is black, with a long slender waist — so slender that his form has been for ages held up before silly girls as a warning. But the hornet is a great big ferocious-looking bee. One thing that makes him so ferocious is his head and forward legs, and the tip of his abdomen painted white, like the signboard signals at a railway crossing I always understood, too, that this white paint meant danger ahead. And about those thousand-legged worms: When we were children they used to frighten us more than wasps; for everybody said they would crawl into one's ears and make him crazy. Yes, and everybody knew a remedy too. It was to pour in hot soapsuds, and drown him out before he gnawed holes through and through. I remember that I once got it into my head that one of these worms was in my head, and no amount of reasoning would do any good until father suggested that perhaps mother had better treat me with some good strong hot soapsuds. I detected a smile in the corners of his mouth, and that cured me. Since then I have had experience with a bee tramping around in my ear, out of sight, and I nevermore want any such experience.

Well, there is another thing you did not tell about: Thousand-legged worms crawl into holes in peaches; and if you should eat one by mistake, you are poisoned to death, sure. In fact, one of my relatives was so badly poisoned that she almost died; but to be sure of the full facts in the case, I just went and asked her about it, and she can not remember any thing of the sort whatever, and did not believe it ever happened. Now, then, Professor, if these millipeds are not poisonous when you eat them, and if they do not crawl into people's ears in order to get holes in their brains (what few they have), please do assure the children of the rising generation that it is all a piece of superstitious humbug, and that they need not tremble in their shoes, and lie awake nights thinking about it any longer. And then about those white-faced hornets: A good many used to say in my childhood, that, if these hornets stung you, you would die for sure. Who has been stung by a hornet or a wasp? and is it any worse than the sting of a good healthy hybrid when he feels well? I have tried yellow-jackets, and their sting does not compare in intensity with that of the honey-bee. It is a little bit hotter, but it does not go down so deep.

PUTTING 6, 12, OR ANY NUMRER OF SECTIONS IN A T SUPER.

AN INGENIOUS SUGGESTION IN REGARD TO CLOSING THE OPEN SPACES.

MY supers hold 24 1-lb. sections. I think any thing larger objectionable, and I don't know that any less number than 24 is desirable to put on at the beginning of the honey harvest. The weather is then pretty warm, and the harvest comes with such a rush, that, about as soon as the bees are ready to work in sections at all, they are ready to work on 20 or more. But toward the close of the season I have often wished for some easily adjusted arrangement that would allow me to put on the hive 5, 10, 20, or any desired number of sections. Until the season of 1888 began to draw to a close, it never occurred to me that this might be accomplished without throwing aside the T super for some other arrangement; and then the wonder was that I had never before thought of any thing so simple. A single section, 2, 3, 4, or any number up to the full super, can be used. To put on 6, 12, or 18 is a very simple matter; but for other numbers, some trouble must be taken. But it is not often that 6, 12, or 18 will not be all that is desired.

First, let me tell how to put 18 sections in a super. Fill the super as usual, only, instead of filling up one of the rows of 6 across the super, put in the bottom of super side pieces of sections, enough to fill the space full, and thus make it bee-tight. If necessary to make them fit right, one of the pieces can be whittled to the right size. Understand, there is nothing different from usual about the sections that are put in; and the pieces of sections that fill out the one row are placed where the *bottoms* of the sections usually rest, on the T supports.

The only reason for taking side pieces of sections is because each side has straight edges, making a close fit, which is not always the case with tops and bottoms. If four-piece sections are on hand, then tops, bottoms, or sides can be used. To put only 12 sections in a super, a second row is treated in the way I have described; and if only 6 sections in a super are desired, then three rows across are closed up with section pieces. I have put the matter to the test with only 12 sections to the super, and it worked to my entire satisfaction. Separators are used just the same as if the super were full. Over the tops of the sections I placed a single thickness of cotton cloth. I used the plan to get sections finished up, that were half or more full. They were put on when bees were slowly storing a little surplus, mainly, I think, from cucumbers. As 12 sections half full gave a capacity of only 6 pounds, there was need of watching to see that the bees did not suffer for room. To make close watching less necessary, I put, for the two outside sections on one side, entirely empty sections with the usual foundation. These empty sections, when honey was coming in so slowly, would not be touched by the bees until the other 10 sections were about sealed over, so they acted as a kind of safety-valve to show me whether more room was needed; and by looking once a week at the two empty sections I knew all I needed to. I had on 30 supers, I believe, filled as described, with varying results. The cucumbers lasted, I think, some three weeks, and during that time some colonies needed a second supply of sections to finish; some filled part or all of the ten sections; and some supers, that were not removed with sufficient promptitude when frost came, probably had less honey at the time of taking off than when put on.

There is another time when it may be of great advantage to put 6 or 12 sections in a super; and that is, near the close of the clover harvest. Here is a hive on which are two supers nearly full. The season may not continue longer than to give the bees just time enough to finish the two supers, in which case no meddling is needed. But they may be able to do a good bit more; and in that case, if no more room is added, mischief will be done. My practice hitherto, at such times, has been to give them a full super; but instead of putting it *under*, I put it *over* the nearly filled supers. Sometimes they have left this super entirely untouched, but too often it has been taken off containing only unfinished sections, and sometimes the bees have made a good beginning on nearly every section, and not five pounds of honey in the whole super. In such case it would be much better to give a super with only 6, or at most 12, sections. There can not well be any tiering-up of supers partly filled, for the only super having less than 24 sections must be on top. Instead of using pieces of sections, I happened to have a lot of thin boards, 4¼ inches wide, and by cutting them to a foot in length one board just filled the blank.

To fill less than 6 sections in a super may seldom be desired; but it can be done in this way: Put in a single section (or more) and fill out the vacancy at each side with pieces of sections. Upon these put enough empty sections to fill out the row, and put one or two separators, or pieces of separators, at each side of the section, to which the bees are to be confined, so that there shall be no entrance to any of the empty sections. C. C. MILLER.

Marengo, Ill.

Well, friend M., when you commenced telling about your invention I thought I would see if I could not guess what you had struck on, before I came to your description. I thought of separators cut up, and of thin boards, pasteboard, and almost every thing else except pieces of sections. Sure enough, when everybody has them around in the way, why shouldn't they be used for closing spaces? Of course, a thin board just right might be a little easier to handle; but then, where separators are in the way, we are not so sure of it after all.

CUBA; HOW IT DIFFERS FROM OTHER LOCALITIES FOR HONEY.

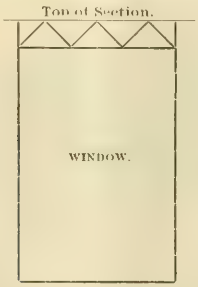
AN EXCELLENT SUGGESTION IN REGARD TO BEE-ESCAPES, ETC.

SEVERAL subjects have been touched upon in the pages of GLEANINGS in some of the late numbers, that I will try and add a little to. On page 598, friend Doolittle speaks of adding combs to his colonies at the close of white-honey harvest. I have practiced the same method with the few colonies worked for comb honey; that is, I have added combs enough so as to obtain whatever dark honey may come in, in extracted form, instead of in sections, in case more comes in than is needed for wintering. Your footnotes on the same page bring up a subject that can not be emphasized too much, much as it has already been told; and that is, that different locations require radically different methods of management to obtain success; and experienced bee-keepers, when criticising, and beginners when trying to follow friend Doolittle's methods, want to bear this in mind. I judge, from the descriptions he has written, that his surplus-honey yield usually commences about the middle of July, while in the large majority of locations in the Northern States the yield commences from four to six weeks earlier, and is practically ended at the time his commences. These extra four to six weeks in which to prepare for the honey season make it necessary to manage differently than would be best where the honey season commences earlier. Changing my location from Iowa to Florida, and then from

Florida to Cuba, has very thoroughly impressed on me the truth of the saying, that no one can achieve the highest success in bee culture until he has a thorough understanding of the peculiarities of his location.

A NEW BEE-ESCAPE EASILY MADE.

In the answers to query No. 63, on page 533, I see that Dadant & Son recommend letting the wire screen run above the window on the outside. I found exactly that arrangement on the shop here; and although the screen runs at least a foot above the top of the window, the bees very quickly learn how to get in as well as out, and I have had to make it more effective, which was very easily done, and, as now arranged, makes as cheap and effective a bee-escape as I know of. I simply nailed some small square sticks of wood between the screen and the side of the house, so each two sticks would be in the form of Λ, with the top end of the sticks sharpened, and just far enough apart to allow one bee to pass at a time. This has worked perfectly. I inclose a very rough diagram, to assist you in understanding the arrangement.



I think if you had had very much experience in trying to save combs from the moth in as southern a climate as South Carolina, you would have answered Mr. C. L. Eaddy's question on page 646 somewhat differently. Moths are much more difficult to control in the South than in the North, and require a great deal more work to do so. Should I ever have any quantity of combs to protect, I would build a moth-tight room, with proper racks large enough to hold all the combs that would need protection, and so arranged that sulphur could readily be burned in the room, and sulphur should be burned in there as often as once every week or ten days, as long as any combs were in it. This makes much more thorough treatment than is needed in the North, but no more than I think is necessary in a Southern climate.

In referring to question 49, on page 652, friend Drumright suggests that, by an examination of the Cuban bee-hives, I could tell your readers whether bees prefer ends or sides of combs to the front. The question was not what the bees prefer, but which way is best for the bee-keeper. Where I had plenty of room between hives, as in Iowa, I prefer the end of combs to the front; but where hives are necessarily crowded close together, as they are here in Cuba, the other way makes easier work.

In your remarks on queries 76 and 78, on page 695, September 15th issue, you assume that I, with others, am not interested in the making of apiarian exhibits at fairs. So far as I am concerned you are mistaken, as I have been interested in this line ever since becoming a bee-keeper. Circumstances have been such that I have oftener been an officer of the society than an exhibitor. The society to which I belonged was in a new and not thickly settled county in the West; and whatever experience I may have had there, would be little or no guide to the very large majority of societies in the country, and I answered accordingly, without going into details. Three or four years ago the Rev. O. Clute and myself were intrusted with the duty of arranging a premium list for the apiarian department of the Iowa State Fair. The amount of premiums was limited to an aggregate of $175, and the principles on which we arranged the list were briefly given in my reply to query 78. The premium lists for 1889 will nearly all be arranged at the annual meetings in January; and would it not be a wise thing for you to obtain all or nearly all the principal lists in the country, and publish a few of the best ones as guides to such of your readers as may be interested? Such lists would have helped us very much, if we could have had them when arranging our own.

Friend Heddon and myself differ in opinion on so many points in bee culture that it is very pleasant, to me at least, to find one on which we do thoroughly and heartily agree. I refer to what he says about Prof. Cook, on page 687. Many things, which are right and proper in a small experimental apiary, will not work in large practical apiaries any more than methods which are good in small shops with one or two hands are not good in large ones employing hundreds. For this reason, differences of opinion will always be coming up between such men as Prof. Cook and practical bee-keepers, and well will it be for us all if we could have the ability and disposition that he has, of correctly judging and adopting correct views and ideas, without reference to whether they are his own or an opponent's. There are other men whose loss would be deeply felt by the bee-keepers of America, but none more so than would that of Prof. Cook. Long may he live to aid, by his knowledge and example, the thousands of men like myself who depend largely on the little busy bee for the ordinary comforts of life. Some of us who know him personally value him for other qualities than those directly connected with bee-keeping. O. O. POPPLETON.

Havana, Cuba, Oct. 5, 1888.

Many thanks, friend P., for your very ingenious suggestion in regard to a cheap method of making bee-escapes. A flat piece of wire cloth, and some sticks of wood about a quarter of an inch square, will easily arrange a bee-escape for any room, I should think, more effectively and much cheaper than the wire cones. But if I understand you, friend P., the sticks should meet each other at the *bottom*, so that the bees, in crawling down between the wire cloth and the house, would find themselves baffled.—I presume very likely it is a more difficult matter to combat moths in tropical or warm climates.—I am very glad indeed to know that you are in the habit of helping the fairs in your locality. May God bless you and all the other brothers in this work of looking after our local fairs. We have already given lists of awards, as a sort of outline for the managers of the fair to make up their premium-lists from, but we are quite willing to give more if need be.

OUTDOOR WINTERING.

PACKING WITH PLANER SHAVINGS, ETC.

IT may interest your readers to know how we pack our bees for the winter, and we may say summer too, as the bees are not taken out of the packing when once placed there. When packed, the bees are surrounded on all sides, also top and bottom, with from six to eight inches of planer shavings. The packing-boxes are made any length convenient. Those I have are 16 feet long, and hold 8 swarms. Some of Mr. Hetherington's are 14 feet in length, and hold 7 swarms. They are 3 feet wide. The front is 4 feet high, and the back is 3 feet.

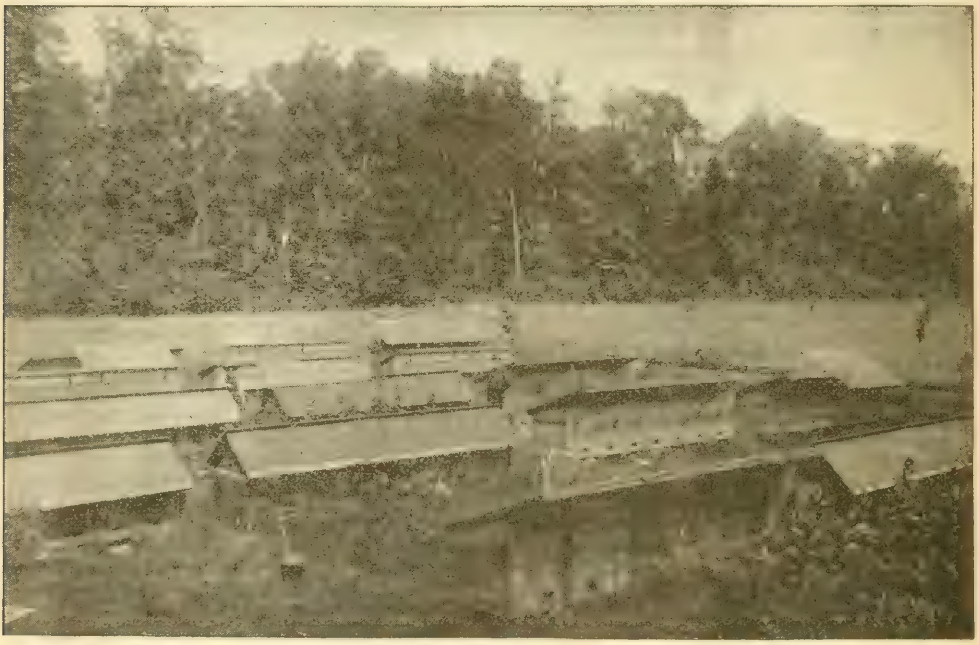
The upper board at the back is hung on hinges, and turns down even with the top of the body of the hive. The box is covered with a shed roof, which is fastened with hinges to the front, and is covered with felt paper, which stands the weather better than tarred paper. The roof is divided in the middle, and is raised up when manipulating the bees. The back board is also cut in two, so that half the box can be opened at a time.

Two boards are set up edgewise in the box for the hives to rest upon, and a covered passageway 8 inches wide and half an inch high is made for the bees to pass out and in, on a level with the bottom-board of the hive.

For convenience, the part under the hives is packed before the hives are set. After the hives are set, and the passageway for the bees is adjusted, pack even with the top of the hive. All this packing so far is intended to remain summer and winter. In packing for winter I prefer boards over the frames, with a two-inch opening for ventilation. This opening we cover with wire gauze, to keep out the mice. Without this opening the combs sometimes get damp and moldy. We cover all with shavings to the depth of six or eight inches, and so adjust the cover that no water can enter. Now if your bees have a supply of good stores, you may confidently expect to find them all right in the spring.

If mice are troublesome, a dish of corned meat with a little Paris green on the top of the packing is advisable. We used to make a temporary box, as recommended by D. A. Jones, and remove it in the spring. Our present method saves all this packing and unpacking in the fall and spring. The swarms build up faster in the spring than those unprotected, and they need no shading in the summer. They winter as well as in any place, excepting a good cellar.

This method has been used quite extensively in this vicinity for several years, and we find no more trouble in loss of queens than when the swarms are further apart.



O. J. HETHERINGTON'S BEE-RANCH, NEAR EAST SAGINAW, MICH.

The inclosed photograph is of O. J. Hetherington's bee-ranch, which contains from 80 to 100 colonies. There is a basswood forest on the north and west sides. That shown in the picture is to the north. The honey and store houses do not show. It is a little more work to take off honey than when the hives stand separate; but the advantages of this method more than overbalance this extra labor.

Mr. Hetherington has charge of my bees as well as his own. He can be seen to the left in the photograph, and your humble servant on the right.

East Saginaw, Mich. L. C. WHITING.

Friend W., we are very much obliged indeed for the fine photograph you give us of O. J. Hetherington's bee-ranch. The idea of packing a group of hives together so as to economize in packing, also in lumber to hold the packing, has been several times advanced; but I believe that, as a rule, most people have eventually discarded them on account of the difficulty of getting at the hives, and working them either for comb honey or extracted. It seems that friend H. has not so decided as yet. At the last national convention in Columbus, our friend R. L. Taylor pretty vehemently "sat down" on the idea of packing hives for winter or for summer either; but it seems that, even in the State of Michigan, a couple of veterans like yourself and friend Hetherington still hold to winter packing; and the packing you describe is a good deal more voluminous and inconvenient to handle than any chaff hive I have ever seen. In *our* locality there is not a question but that bees, as a rule, are better off protected than in single-walled hives left exposed outside.

DOOLITTLE'S REPORT FOR 1888.

72½ LBS. OF COMB HONEY, PER COLONY, SPRING COUNT, EVEN DURING THIS VERY POOR SEASON.

WHEN the honey season arrived I found that my bees had been reduced by sales and losses to only 17 queens out of the original number (60) which I went into winter quarters with. The total loss from wintering was three, and from spring dwindling the loss was two. "But," says one, "was not the result from spring dwindling caused by poor wintering?" Well, I am not ready to admit that yet, although I know such is the claim put forth by some. The dwindling, came from those that were wintered in the cellar, while a few years ago I had several cases of severe spring dwindling from those wintered outdoors. In both cases the bees wintered well, or fairly so, at least; and, besides, two weeks previous to the time they commenced to dwindle I had many colonies which, to all appearance, were no better than those that were lost, which did not dwindle at all, but came through in excellent condition. When any one will give us a satisfactory reason why one colony dies, and another as near like it as two perfect peas can be like another, lives, then I will think that perhaps I know something of this matter; but as it is, I am wholly ignorant of the matter, and believe it to be a manly act to say so, when I do not know, instead of trying to excuse it off by some theory which I know no more about than I do the first. Of one thing I am certain; and that is, that losing bees in winter and losing them in the spring are two different things, for you know that the old man said he could winter his calves first rate; but when it came to springing them, then it was the " 'despit sus." The seasons vary so that it often upsets all of our calculations, and so it happens that the time that is given to set the bees out of the cellar (when the red elm and soft maples are in bloom) does not always prove to be the right time. Some years I have been three weeks in getting my bees out of the cellar, setting a few out each day when the weather was fine; and it has proven as often that those set out first did the best, as it has the other way, so that the late-setting-out theory is of little value. But, to the report:

Hard maple opened about the 20th of May, which gave the bees an abundance of pollen, while the white and golden willow, which were in bloom at the same time, gave enough honey so as to start brood-rearing to a considerable extent. With the apple bloom it came cold so that the bees could get nothing whatever from that source, which held brood-rearing in check for so long a time, that, had not the basswood been late in blossoming, the bees could not have possibly been gotten in condition to take advantage of it. This cold weather at this time (June 1st to 10th), was so severe that the ground was frozen to the depth of half an inch in places, and the honey-dearth lasted so long that all drones were killed off except in a few colonies which had a large supply of old honey. June 20th, the clovers opened so the bees went to work to some extent, getting a little honey from this source, and from the red and black raspberry bloom, as well as the black locust; yet all of these sources combined did not give any more than was used up in brood-rearing, except from a few of the strongest colonies. Of the clovers, only the alsike seemed to yield honey, for only that of a reddish cast was stored, such as we had a few years ago when a large acreage was sown within the range of my bees. This dark color is against this honey, although it is of fine flavor. As to yield of honey, it is ahead of any other variety grown in this locality; and if it would give a prolific hay crop it would be largely sown by our farmers; but when they found out that it seldom held in the ground more than a year and a half after sowing, and did not give one-half the hay the red clovers did, they soon stopped sowing it. Owing to the peculiar season I had less swarms, from the colonies kept, than in any year since I have kept bees, only about a third casting swarms.

Teasel opened about the fourth of July, but gave very little honey at any time during the season, although occasionally a bee would be seen coming in covered with teasel dust, even in the height of the basswood bloom.

Basswood opened about the 8th of July, and lasted nearly three weeks, although it gave comparatively no honey, for the first five days after it opened. The weather now came off quite favorable, and honey came in so freely that all of the colonies which were worked for honey were soon in the sections, and the nuclei began to fill the tops of their combs with honey. The yield continued good for nearly two weeks, though at no time large, and then came the closing-up of our honey season for 1888, as this has been the eleventh year that buckwheat has failed entirely in this locality. I had hoped to work at least 25 colonies for honey, but the queen-business boomed so during the month of June that I had to break up all of the colonies to form nuclei, from which I sold queens that had been wintered over, so that I used only the 17 having queens for honey, and many of those were drawn upon for bees to keep the queen-business going. From the 17 colonies worked for honey I obtained 1233 pounds of comb honey, as I have not used the extractor to get a pound of honey this season. This 1233 pounds of honey divided by the 17 colonies gives 72½ pounds as the average yield of comb honey from each colony, spring count, and, considering the poorness of the season as a whole, I think it is as good as I have ever done. I go into winter again with 60 colonies, which have been obtained by division, doubling up of nuclei, and the few swarms which issued. All colonies worked for honey had plenty of stores for winter, after equalizing the honey among them;

but the doubled-up nuclei had to be fed to some extent. The result of the queen-rearing business shows $550 net cash. I have shipped the honey on commission, and have not got returns for it yet.

Borodino, N. Y. G. M. DOOLITTLE.

If the honey-yield was as poor with you as with us, you have done exceedingly well. The small number of 17 colonies, however, spring count, would rather favor making a large yield per colony; for a bee-keeper with years of experience, and only 17 colonies to work with, ought to be able to make a pretty good showing, almost any season. When it comes to making *hundreds* make a good showing per colony, the labor of both brain and muscle is very much greater.

BIOGRAPHY OF REV. L. L. LANGSTROTH.

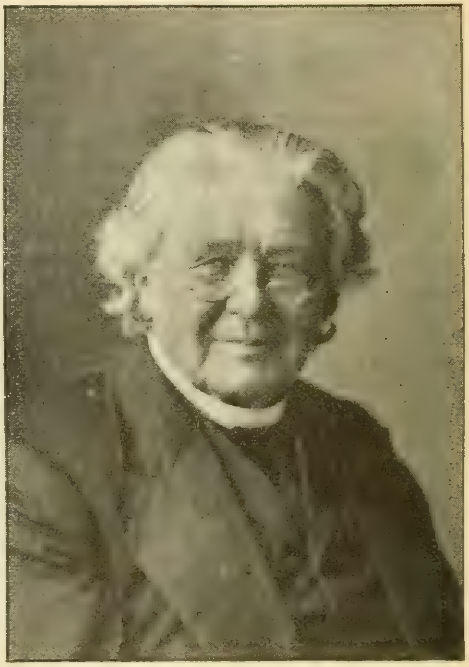
BY PROF. A. J. COOK.

IT is a rare event in our social economy that any man is so great in thought, invention, or method of work, that, by his own unaided ability, he is able to revolutionize the methods of any industry. Hence it is that the world honors, and most justly, such men as Stevenson, Whitney, and Langstroth. It is also rare, fortunately it is becoming less and less so, that a man of wide culture and superior intellectual endowments cares to interest himself in that which is useful or practical. The more honor, then, to such men as Langstroth, who worked with the greater ardor because his work would benefit his brother-man.

There is still another peculiarity of noble minds—must I say that it is rare?—such a love of truth and honesty that, even though business, property—yes, life itself—is at stake, they will not swerve from the strictest integrity. One has only to know our dear old friend intimately, as I have known him, or even to read his book and articles for the press, to see that just such a love of truth, just such transparent honesty, inspires all his thought and work. Such truth is a crown of glory that the world can never give. It is for these grand qualities, even more than for his great achievements, that we as bee-keepers love to do honor to this "father of American apiculture," and that the whole bee-keeping world reveres his work and his character. If not the greatest, he is certainly one of the greatest benefactors of the bee-keeping art—a man of whom we all wish to know more—a man whose memory will always be cherished by bee-keepers everywhere.

Lorenzo Lorraine Langstroth had his birth in Philadelphia, the 25th of December, 1810. Born in the "City of Brotherly Love," how worthily he has acted to maintain the reputation of his natal city! How few men exemplify more of brotherly love in their every-day life! As a child, Lorenzo was passionately fond of insects. Even now he grows eloquent as he tells of the pleasure he had when a boy in watching ant-hills, and in searching out other insects, and studying their wondrous habits. His parents, though intelligent, well-to-do people, did not encourage this seeming "waste of time," and so, instead of encouraging his thirst for study from the grand book of Nature by a show of interest or words of approval, and by supplying books devoted to natural history, they repressed this desire to know God by the study of his handiwork. It seems strange to us now, how parents can see that any thing but good can come from a study of the pure and true, as Nature writes it on all her pages.

At the age of seventeen Mr. Langstroth entered Yale College, from which institution he graduated four years later. Those of us who have admired the classic diction of his great work, "The Honey-Bee," have listened to his reading from Virgil and Columella in Latin; and have heard him eloquently explain his invention and methods of work, need not be told how industriously these college years were spent. Neither are we surprised to know that he was thought competent to teach in the great college from which he had received his education. He was two years Tutor of Mathematics at Yale, and entirely sustained the expense requisite to a theological course which he took at his *alma mater*.



LORENZO LORRAINE LANGSTROTH.

In May, 1836, he was ordained pastor of the Old South, or Second Congregational Church, at Andover, Mass. Eloquent, learned, studious, devout, full of that love which "esteemeth others better than oneself," it goes without saying, that Mr. Langstroth was a successful pastor in the best sense of that word. In the same year, he married Miss Anna M. Tucker, of New Haven, Ct., by whom he had one son and two daughters. Many of us remember what a faithful helpmeet he secured. During the severe illnesses of her husband she carried on his very arduous and extensive correspondence as only an unusually competent, dutiful, and loving wife could do. The beauty and painstaking accuracy of the business letters written by Mrs. Langstroth showed full well that her husband had secured that best of life's blessings, a good wife.

Mr. Langstroth often says that he owed more than he could tell, to his devoted and accomplished wife.

A year after Mr. Langstroth's settlement in Andover he was incited, by the sight of some exquisite comb honey in a glass globe on the table of a friend whom he was visiting, to investigate the latter's bees, which were kept in the attic. His delight was exceedingly great, and nothing could stay his ardor and enthusiasm, now at white heat, till he had secured two colonies of bees, which, of course, were in box hives. His only bee-books were Virgil and an American work, whose author at this time doubted the existence of a queen-bee.

Two years later, 1839, Mr. Langstroth's health became so impaired that he was obliged to relinquish his pulpit. He then removed to Greenfield, Mass., where he gave his attention more and more to bees. His thirst for knowledge on this subject led him to seek light everywhere. Soon the works of Bevan and Huber fell into his hands, and there was opened a new world before him. From this time on he gathered industriously the works of foreign and American writers on bees and bee culture, till now he has one of the finest apiarian libraries.

Soon after relinquishing his pastorate in Andover Mr. Langstroth was chosen principal of the Abbott Female Academy in that place. Subsequently he was elected principal of the Greenfield High School for young ladies, and was for five years pastor of the Second Congregational Church in Greenfield. His health again compelled him, in 1848, to resign his pastoral charge.

In 1848 Mr. Langstroth opened a school for young ladies, in Philadelphia, where he began more earnestly to investigate the habits of bees, and to experiment with hives, which led to his great invention, *the Langstroth movable-frame hive*, which was devised in 1851. Mr. Langstroth has shown me this important sentence from his journal of October 30, 1851 (recorded on the very day that he devised his plan for using a movable frame): "The use of these frames will, I am persuaded, give a new impetus to the easy and profitable management of bees."

In regard to this invention, which was to bee-keeping what the gin was to the cotton industry, I quote from my Manual, 9th 1000, page 283: "In 1851 our own Langstroth, without any knowledge of what foreign apiarian inventors had done, save what he could find in Huber, and the edition of 1838 of Bevan, invented the hive now in common use among the advanced apiarists of America. It is this hive, the greatest apiarian invention ever made, that has placed American apiculture in advance of that of all other countries." Mr. S. Wagner, than whom, from his wide knowledge of all apiarian literature, no one was better able to judge, in speaking of this invention, says: "When Mr. Langstroth took up this subject he well knew what Huber had done, and saw wherein he had failed—failing, possibly, only because he aimed at nothing more than constructing an observatory hive suitable for his purpose. Mr. Langstroth's object was other and *higher*. He aimed at making frames movable, interchangeable, and practically serviceable, in bee culture, NOBODY, *before Mr. Langstroth, ever succeeding in devising a mode of making and using a movable frame that was of any practical value in bee culture.*" Probably no one was more conversant with this whole subject than Mr. Wagner. He was thoroughly informed as to German, French, and English bee-literature and methods. His statement should then and there have set at rest all question and controversy; and it would, had not greed, selfishness, and dishonesty prompted men to reap where they had not sown.

"Langstroth on the Honey-bee" was first published at Northampton, Mass., in May, 1852; and in its preparation for the press, our American Huber, like the other Huber, was greatly assisted by his wife. It was revised in the year 1857, and again in 1859, since which time it has not been revised, though many thousand volumes have been published and sold. This work is really a classic. Its admirable style, clear and accurate descriptions, exceeding thoroughness and completeness, and its perfect candor, honesty, and ingenuousness, made it a favorite with all who studied its pages. Had apiculture stood still, and science slumbered, no second work would have been needed. Every bee-keeper will rejoice that persons having such wide knowledge and practical skill as Messrs. Charles Dadant & Son are revising this great work. In 1858 Mr. Langstroth moved to Oxford, O., where with his son he engaged in the rearing for sale of Italian queens. His apiary was large, and his sales in a single year reached the sum of $2000, which at that time was something astonishing.

The death of his only son in 1870, and of his wife in 1873; a severe form of head trouble which often wholly incapacitates him for mental or bodily exertion (one attack having lasted for two years), together with a serious railroad accident, compelled Mr. Langstroth to sell his apiary in 1874; but he has seldom been wholly without bees.

We regret to say that Mr. Langstroth never received any considerable reward from his great invention. Its great value was at once recognized, but, through infringements, others reaped the reward which rightfully was his. These infringements led to litigation which swallowed up even the gains that had been received. This whole matter is the dark page in American bee-keeping history, and we gladly pass it by without further comment.

Those personally acquainted with Mr. Langstroth are aware that he is a very superior-looking man. His physique is large and fine, his face kindly and intelligent, while his broad culture, pleasing manners, and delightful social characteristics, make him a charming companion. He is loved and venerated by American bee-keepers, not only for what he has done for them, but also for his beautiful character and genuine personal worth. Happy are we that he who is both our Huber and Dzierzon is not only worthy of all respect and admiration for what he has *done*, but even more for what he *is*.

In 1887 Mr. Langstroth removed to Dayton, Ohio. His home is with Mr. H. C. Cowan, who married Mr. L.'s eldest daughter, and their seven children add much to the comfort and enjoyment of his declining years. A. J. COOK.

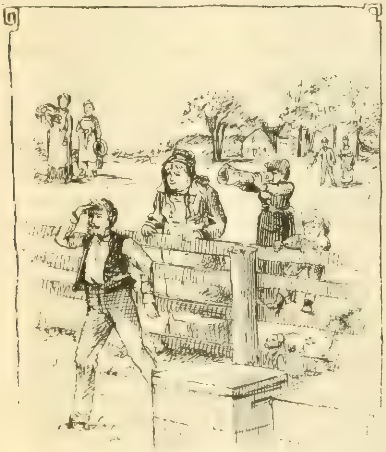
Agricultural College, Mich.

My first acquaintance with Mr. L. was in 1870. In the introductory to the A B C book I have mentioned a swarm of bees that attracted my attention as it flew over our factory. Before winter set in I had an Italian queen; and on the principle that "the best is the cheapest" I concluded that I wanted the best Italian queen that could be purchased. I learned from Samuel Wagner that Mr. Langstroth was still living, and a correspondence soon resulted in putting me in possession of a queen that cost $20.00. From that time to the present I have had more or less correspondence with friend L., and I most heartily concur in all that friend Cook has said in regard to him.

A NOTE OF JOY.

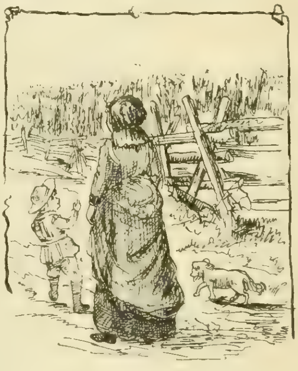
FOLLOWING UP BEE-LINES; A GLIMPSE AT THE CHADDOCK FAMILY.

DEAR FRIENDS:—You have been called upon on different occasions to mingle your tears with mine, and the response has been prompt and fervent; and now, when my heart is glad, I ask you to share my joy. Last Sunday I went to camp-meeting; and after the sermon in the big tent they had a little prayer-meeting. They sang "God be with you till we meet again," then the heart of the vast throng knelt down and a dozen voices prayed aloud, all at the same time; then they stood up and sang "God be with you till we meet again," the same song, and all the folks shook hands with each other, laughing and singing all the time—then they jumped; men took hold of each other's hands, and jumped up and down; men clasped men around the neck, and wheeled around like dancers in a waltz; women embraced women, and fell on their necks; it seemed as if a hundred people were holding up one hand, and shouting; then they would all break loose from their waltzing and jumping, select new partners, and go through with the same motions with some one else. This performance lasted fifteen or twenty minutes; and the only song they sang was, "God be with you till we meet again." Well, I do not feel quite as happy as those camp-meeting folks did, though I *do* feel like shaking hands with everybody, but I'm not going to do any waltzing nor jumping.



THE CHADDOCK FAMILY WATCHING THE BEES.

About a month ago I was resting with my head toward the telephone window, when I heard the bees roaring. I went out to them, and saw that they were working joyfully; and I called Mr. Chaddock out to see which way they were going, so that I could find out what they were working on. He came out, and stood looking up with one hand raised to shade his eyes. Then Minnie came out to look, and she said that we could see better by looking through a newspaper rolled up in the shape of a spy-glass, and she made a tube of the paper she held in her hand, and looked through it. Then Jessie came out with the dish-pan in one hand and the dish-cloth in the other—she was just emptying the dish-water, and Sarah, seeing us all looking at something, came out with a load of stove-wood in her arms, to look too. Then Harry came, leading Gyp with a string, and looked; and cousin Em and her beau from Bureau Co. left the hammock and came out to help us look. The young man in the distance, with the fan in his hand, is the beau, and the curly-headed girl at his side is cousin Em. After we had looked awhile we found that part of them went north and a part went east, and Mr. Chaddock said that he had seen them working on the red clover in the east field a few days before, but had forgotten to mention it, and he said that he supposed they were getting honey from the smartweed in the north cornfield. Then he went out to work, and Minnie went back to her reading. Jessie put away her dish-pan, Sarah carried in her stove-wood, and the lovers went back to swing in the hammock; but Harry and Gyp and I went up to the north field to see if the bees were working there. We found them thick on the smartweed, which grew as high as my shoulders, in places. Last week I took off a case of honey, and we are all sweetened up; the hives are heavy with honey, and the question of "what shall I do with my bees?" is settled.



HARRY, GYP, AND I.

Vermont, Ill. MAHALA B. CHADDOCK.

My good friend, I am afraid that your picture of the camp-meeting is not calculated to inspire the world at large with reverence and respect for God's chosen people. If the men who took hold of each other's hands, and jumped up and down, afterward pulled out their pocket-books and settled up unpaid debts, principal and interest, it was indeed a fitting time for song and rejoicing. Yes, the whole multitude might have leaped for joy to a very good purpose; and if the women who embraced each other, and wept on each other's necks had long been estranged by some neighborhood quarrel, and this was a time for each one to ask each other's forgiveness, and for genuine repentance for past harsh words and uncharitable thoughts, then I too would have felt like shouting and leaping for joy. Now, although you do not tell us any thing about bringing forth "fruits meet for repentance," we hope and trust it happened all the same. The selection of new partners which you describe, I suppose was letting go of one person because he caught sight of another whom he had wronged, and made haste to beg his pardon and forgiveness likewise. If all this was done up in 15 or 20 minutes, so that no spite, prejudice, or unregenerated heart was left in the background, then indeed it was a pretty good neighborhood in the commencement. If you feel like shaking hands with everybody, I suppose you, too, have forgiven and have forgotten every wrong that any one has perpetrated against you.—We are very glad indeed that you too have found out about smartweed honey. I suppose, however, it is heart's-ease honey, to be accurate. The glimpse of your home and all the family, given us by our artist, is quite interesting. How I should like to be one of the crowd comprised of "Harry, Gyp, and I"!

MRS. HILTON TELLS US OF HER TRIP AMONG THE BEE-KEEPERS.

A VISIT AMONG THE ORANGES.

DEAR MR. ROOT:—Here I am, over 200 miles from home, sweet home, in the land of oranges, mocking-birds, and irrigating-ditches. The first are green yet; the second are singing everywhere, and the third are fast-flowing streams, about 6 feet wide and 4 deep, with fresh-looking weeds and beautiful trees on each side a good bit of the way. Of course, this is the poorest time of the year to judge the country by; but I can imagine how lovely it all looks after the rains have freshened it all up; for to my mind it is lovely now. The Valley (the Santa Ana), is laid out in squares, and many of the roads are lined with pine-trees. Imagine a drive of 6 miles, shaded with the graceful pepper, stately gum, English walnut, and Monterey cypress, the prettiest cypress in the world.

In our drive here we passed through Ventura Co. At the Coneja Ranch we were treated to some lovely water-white honey. It was gathered by bees at the apiary of the Russell Bros., run by R. Holman. They have 100 stands now, and got 7 tons of honey this year—pretty good for a dry year. Just before we got to the ranch we crossed the Guadalaska Mountains, and there was a hive roosting on the steep mountain-side. The bees seemed to be busy. After passing across the San Fernando Valley we came to a pass in the mountains called the Cahuenga Pass; and there at the highest part of the pass was an apiary. We had not time to hunt up the owner and ask questions, so we can not give any information. At Catabasas Station, in Ventura Co., the bees were roaring in the live-oak trees.

Since we have been here we went on a hunt for honey in the Santa Argo Cañon, but we did not get any. The bee-man had sold out and was gone, and the other apiary was 6 miles further on—too far for us to go that day. We heard of a man near Olive Heights who had honey, so we called on him yesterday. He was living in the fruit-belt, and could not keep bees, but he amused himself occasionally by taking a trip into the mountains beyond his house. He had found a cave lately, from which he got honey enough to fill three 5-gallon cans full of nice amber honey. He did not disturb the bees any more than he could help, and he left them about 20 lbs. He thought he might want to visit them again.

Monday, my brother-in-law was out among the fig-trees, and a large swarm passed slowly over his head. We would have tried to stop them if he had been going to stay here. I may write again if I learn any thing more about bees during our trip home. We shall start in a few days.

Orange, Cal., Oct. 12, 1888. MRS. J. HILTON.

You say the oranges are green, my good friend. Then perhaps by the time I get there they will be ripe. Won't it be grand to see ripe oranges growing on the trees? I shall be somewhat interested in the mocking-birds, but not near as much as in those irrigating-ditches. I have been fearing that, by the time I get there, the irrigating time will be over. Well, if it is, then I shall be on hand when the first rains commence, and that will be glorious, I am sure. I wonder if the people of California rejoice when a good shower comes, as we do after we have had a dry spell. If you went to Ventura County, I wonder why you didn't call on friend Wilkin. And I suppose, too, I shall have the pleasure of not only seeing but climbing to the summit of a real "live" mountain. I wonder if the Californians will smile at my simplicity as the New Yorkers did when I visited their city. You did not tell us whether those fig-trees really bore figs. By all means, tell us more of your trip.

ARE QUEENS INJURED BY SHIPPING?

OUR FRIEND CHAS. DADANT RECONSIDERS THE SUBJECT.

IN compliance with your request, page 750, asking the bee-keepers who have purchased queens largely, to give the results of their experience on the above subject, I will say that, during several seasons, we have received, from Italy, twenty-six queens every week, from the first of June to the first of September, introduced most of them in our hives, to be shipped as ordered; and that, although most of them were taken from full colonies in the height of the breeding season, we do not remember of having had complaints from our customers as to the prolificness of their queens. Our shipper, Fiorini, to whom we used to pay good prices, was very careful to send only young and prolific queens.

Queens lay more or less, according to the quantity of food offered them by the bees. When the weather turns suddenly cold, the bees cease to nurse them, and they cease laying as soon as their matured eggs have dropped. The eggs, which are but partly developed in the ovaries, remain till they have an opportunity to grow and to slip into the oviduct. As such sudden stops are of frequent occurrence during the life of a queen, they have no influence on her subsequent prolificness.

As to queens losing most of their prolificness when sent by mail, I may say that one of our neighbors having brought, near our home apiary, about forty colonies of black bees, in box hives full of drones, nearly all of our young queens were impurely impregnated. To mend such a state of affairs we ordered, from our friend Viallon, fifty queens to replace our mismated ones. Every one of these queens, although received by mail, proved good and prolific. Therefore, to our mind, Ernest was right when he wrote: "The shipment, by mail or express, does not deteriorate the laying of a queen." We may add, "Even when she is taken from a full colony during the height of the laying season." CHAS. DADANT & SON.

Hamilton, Hancock Co., Ill.

It can not be urged that the Dadants are prejudiced in this matter, for they are not, at the present time, if I am correct, in the business of selling and sending queens by mail.

PAPER RECEPTACLES FOR EXTRACTED HONEY.

FRIEND GREEN SUGGESTS PAPER PACKAGES FOR VERY SMALL QUANTITIES OF HONEY.

AND now it is Mr. Will Heddon who has brought one of my cherished ideas before the public, before I was quite ready to make it known. It is a little aggravating, under such circumstances, to find that somebody else is just as smart as you are, or more so. However, we have been working in somewhat different directions, and I must confess that he has gone ahead of me. I never expected to ship 60 pounds of liquid honey in a paper can. I believe it can be done, though I think a heavier paper than ordinary manilla will be found necessary—something like flour-sack paper, or some of the Japanese papers, which are almost untearable. Waxing would probably be advisable. One objection would be, that the surplus wax could not be got out without getting wax on the outside of the paper, and I do not think glue would stick well on this waxed paper in putting on the cover. However, I think it would be much better to glue on the block for drawing off the honey before shipment, using a cork covered by a tin slide, or piece of paper glued on. In shipping, lay a board over the top, of the same thickness as the block, and cut to fit. Undoubtedly such receptacles will answer if the honey is allowed to candy before shipment, though this would not suit our California friends. My experiments have shown that very light paper will hold honey.

PENNY PACKAGES.

I decided long ago, that, if candied honey could be put up in small and inexpensive packages, selling at, say, a cent apiece, and giving the buyer as much for his money as he can get of ordinary candy, an immense trade could be opened up in selling honey as confectionery. With this idea in view I made a number of blocks, ½ x 1 x 2 inches. To facilitate handling, a wire nail was driven into one end of each. Pieces of paper were then cut 4 inches square. Placing two of the blocks together on end, in the center of a square of paper, it was folded neatly around them, and the whole set away in a square tray with shallow sides. This was repeated until the tray was full of these wrapped blocks, pressed closely together. The blocks were then drawn out of the paper covering, the advantage of a double block being apparent in this operation. This left the tray full of neat little paper boxes. My idea was to partly fill these boxes with well-ripened honey of any variety that will candy hard and dry, then when candied fold down the sides and sell just as caramels are sold. This was last November. I had such faith in the practicability of the scheme, that, if I had had any good honey, I would have tried it on a scale large enough to demonstrate its practical value. I had none, though, and did not think I could get any good enough for the purpose, so I concluded to wait another year. I filled a few, though, with such honey as I had—dark, rank, vile-tasting *stuff*—that is the only name for it. It did not candy at all, nor show any inclination to do so. Some of them are in my honey-room yet. These were made of GLEANINGS paper, just such as this is printed on; and although they have held liquid honey for nearly a year, they have not leaked a drop, being only a little sticky on the outside. Manilla paper was better. Waxed butter-paper leaked, but was of poor quality. Caramel paper would probably be best. These packages could be made by machinery very cheaply, and sold packed in the trays in which the honey was to be shipped. Machinery could readily be devised to fill them rapidly with a definite quantity of honey. Larger packages, holding 5, 10, and 25 cents' worth of honey, can be made in the same way. For the last, and, indeed, for any thing larger, the ordinary manilla-paper sacks would probably answer. For retailing in stores, a pasteboard case or wrapper of fancy paper could be used outside to prevent any possible stickiness. Do not say that honey will not candy hard enough. If properly ripened it will. I have been selling just such honey for years. Some kinds will not do. White clover and basswood are the best. The heart's-ease honey, of which so much has been gathered this year, is not very good for the purpose.

This idea, if it proves successful in practice, as I feel sure it will, will be of immense value to honey-producers, affording a market for thousands of pounds of honey at remunerative prices. I give it to the fraternity freely, and hope as many as possible will try it and report. JAMES A. GREEN.

Dayton, Ill., Oct. 5, 1888.

Friend G., we have little paper pails now stowed away, to hold a nickel's worth of honey. We have several times tried to start a retail trade; but everybody preferred the glass pails, even if they cost a little more money, and therefore a paper package has always been in the background. Now, there is one thing you have come pretty near striking on, that is very much needed. It is some sort of an arrangement that allows people to take a taste of honey without daubing it on their clothing or whiskers, and without being obliged to dip the same spoon into the dish of honey a great many times, and convey it to ever so many different people's mouths. At every convention we have this sort of work. I think I am tolerably careful, but I always get honey on my whiskers, and then, very likely, on my clothing. Where some one has a jar of honey from Florida, or something new and wonderful in the honey line, everybody wants a taste; but there is no way yet invented, that I know of, for giving everybody a taste in a genteel and respectable way. If it is grapes or strawberries or apples, it can be managed nicely. I have been wondering if we could not have a little paper bag that would hold say a good-sized spoonful. Put the bag and all in your mouth, chew up the paper, and then throw it in the grate, or stick it in your pocket until you get outdoors. The next thing would be to get those paper bags filled without daubing. The usual way is for the men to get out their jack-knives, dip the blade of the knife into the honey, twirl it around rapidly, and then put it into the mouth as quickly as possible. This last always results in daubing in the way I have mentioned. I have thought of a little bag or ball made of wax, filled with honey, or, if you could get it, bits of comb honey big enough to be deposited right in the mouth, but, of course, without any stickiness on the outside. We have the same trouble in carrying honey on our market-wagon, where we want to let everybody have a taste of something that is new and nice. Muth's dime jar does pretty well; but sometimes you want to ask people to take a taste, without compelling them to pay a dime, or even a nickel, for the privilege.

BEES WITH 100 BROOD-CELLS TO THE SQUARE INCH.

AN INTERESTING LETTER FROM A BEE-KEEPER IN ONE OF THE REMOTE REGIONS OF THE GLOBE.

MR. EDITOR:—I have found GLEANINGS straying about my place for some weeks back. It says nothing about how it found its way here; but on page 433 I find the faces of two persons whom I suspect from their looks to have sent it wandering. However, I have done what I could to redeem their good names of such conduct by befriending GLEANINGS, and giving it good care; for it always seems to arrive well loaded with first-class food, evidently brought from afar, as it savors not of this land. I fear it could glean but little in this region; for while there are bees in abundance, both great and small, some living on limbs or bushes, others in holes or hollow trees, there is but little culture. I can not say there is no "bee culture," for I myself keep bees, and I think I might be classed as an expert in some things, for I have never lost a colony by cold winters or otherwise, to my knowledge. I have kept the one colony I now have for about nine years, and it seems to be thriving. GLEANINGS has never mentioned this kind of bees to me, and I should like to know if it can tell me any thing about them. The full-grown bee is three-sixteenths of an inch long, and about as large around as a common pinhead. The head and body are black; the abdomen is nearly a transparent straw color, with shaded stripes across the upper side. I keep them in a round earthen dish, one foot in diameter, having a hole at the top about five inches in diameter, over which I tie a cloth, and hang the hive under my house, about six feet from the ground.

There are two small holes on opposite sides of the hive, for the bees to enter. The bees make wax-tube entrances to these holes, and extend them until they face the prevailing winds. They have also cut a small opening in the cloth at the top, for ventilation I suppose, as they do not use it for an entrance. The whole hive is lined with a thick coat of wax, which is very tough and adhesive. The wax will not crumble, and is quite pliable. Cutting about the waxed cloth cover, which can be readily returned and securely sealed with a few pressures of the thumb, you behold the rich yellow comb lying horizontally, being braced one above another by wax pillars. The cells are not hexagonal, but round, with a depth a little more than their horizontal diameter. These cells stand one hundred to the square inch, and are used only for breeding. The larva lies with both ends downward. When recently opened my hive was about one-fourth full of this brood-comb, above which was a large air-chamber, entirely surrounded with large round honey-cells, nearly or quite one-half inch in diameter. As the wax does not crumble, and is thin and pliable, a ladle dipped into these cells brings you the honey as clean as if drawn by an extractor. By putting your nose to the opening you get a strong but pure and wholesome vinegar smell. Do not fear for your nose. They are not Cyprians; at least, I find no difficulty in handling them. If I was ever stung by them I never knew it, although I have surmised they were doing their best to sting me. Now taste the honey, and you find the first taste almost as sharply sour as first-class vinegar; but this is followed by the taste of good honey. This vinegar taste grows less, and the flavor of the honey improves by standing, so that I would enter it at your centennial exposition for a premium, if I were not such a "furriner."

There is a honey-plant standing in my yard, which you would be glad to see in your apiarian garden, I think. The blossom-stalk stands 30 feet high. It has about 600 large blossoms on this one stalk. I would gladly tell you of this plant, and of some hexagonal-celled balls I found the other day; but I must refer you to your botany for the plant. See under *Agave Americana;* and if you would like to get any for bee culture, you can probably get them from Mexico easier than from here. Our latitude is 25½° N., and 90¼° E. of London. The latitude shows with what temperature I have to contend in wintering bees. Please thank Maggie Dillehay for her letter on cotton-growing, on page 401. I am following her directions in raising plants from American seed, except that I planted the seed in July.

M. C. MASON.

Tura, Assam, East India, July 14, 1888.

Thank you, friend M., for the facts you give us. Before I got to your name at the end of your kind letter I had a sort of feeling that there was something exceedingly familiar about your style of writing. In fact, it sounded like somebody with whom I was intimately acquainted. Presently it occurred to me that the writing bore a strong resemblance to the talk of our good friend Dr. A. B. Mason, whom I have just parted with after two or three days of exceedingly pleasant visit. I suppose these little bees that make honey that can be dipped up without the aid of a honey-extractor would hardly thrive in our climate. Still, we are very glad indeed to know about them. I presume it is quite likely they do not produce 100 lbs. to the colony each season; but as they are stingless bees, if we understand you correctly, no doubt many of us would be content with less than the above amount per colony. Will not that vinegar-flavored honey make grand lemonade when dissolved in water, with a lump of ice to help it along?

OUR QUESTION-BOX,

With Replies from our best Authorities on Bees.

All queries sent in for this department should be briefly stated, and free from any possible ambiguity. The question or questions should be written upon a separate slip of paper, and marked, "For Our Question-Box."

QUESTION NO. 85.—*(a) Should syrup for winter use be given in a large feeder all at once, or in small quantities, about a pint daily, until supplied? (b) Will the former be as well ripened for the bees as the latter? In either case, will bees winter as well on the one as on the other?*

a. About a pint daily. b. No.
MRS. L. HARRISON.

I prefer to feed as rapidly as possible.
DR. A. B. MASON.

a. All at once, if possible. b. It should be thick enough not to need ripening. **DADANT & SON.**

All at once. Yes. Yes, except as the first gives time for capping, which is desirable. **A. J. COOK.**

a. In feeding for winter, I use feed as fast as the bees will take it. b. If your syrup is right, no ripening is necessary. **GEO. GRIMM.**

Neither; about 2 to 3 pounds each day is better. It will be better ripened, and especially better sealed over, than when fed all at one time.
H. R. BOARDMAN.

Necessity often requires that we feed rapidly. I believe it would be slightly better if fed a little slower, but I have not tested the matter in wintering. **P. H. ELWOOD.**

When feeding honey for winter stores we feed as fast as we can, and we have no trouble to get a colony to take a gallon a day—4 feeders full—all on at once. **E. FRANCE.**

After considerable experience along this line, I prefer to feed about 3 lbs. a day, and I think I get better results from this than by feeding either a greater or smaller quantity. **G. M. DOOLITTLE.**

a. Yes, I should prefer a large feeder, so as to give all at once. By using syrup made as per directions given in No. 82 it will be well ripened, as such syrup weighs nearly 12 pounds to the gallon.
PAUL L. VIALLON.

a. All at once, but early enough so it can be ripened. b. Yes, probably, if fed early. I don't believe bees will winter as well on late-fed syrup; and feeding gradually (if the feeding be finished in each case at the same time) is really feeding earlier.
C. C. MILLER.

For winter stores I prefer to put on at least 2 jars, and fill them up as soon and as fast as emptied, until the colony is supplied. If it were my object to stimulate breeding, I should give it a pint or less daily; no danger from heavy feeding if food is wholesome. **CHAS. F. MUTH.**

a. I prefer to give it all at once. b. The syrup should not require ripening. According to good authority, bees partly change cane sugar to grape sugar in the ripening process. As cane sugar is better for wintering, unnecessary ripening would seem to be detrimental. Certainly, they winter well both ways. **JAMES A. GREEN.**

a. It should be given in a large feeder, all at once. Small quantities daily induce breeding, which is objectionable, as it consumes food for the production of useless bees; and young bees are not as good to winter with as old ones. b. You will see by my answers to questions number 82 and 83 that I feed the syrup ripe. Bees will winter the best on thick ripe syrup. **JAMES HEDDON.**

Give it as fast as they will take it evenings, having it only a little thinner than honey, so that but little ripening is needed. In the case referred to, in reply to query 83, I remember that I usually fed a barrel of sugar each evening, late, to prevent robbing, and I think I remember one hive storing over 30 pounds in 24 hours. Of course, there was no fooling, these making no unnecessary wax nor rearing brood when it was not wanted. I had not the least trouble about unripe honey, and I could not be mistaken about my bees wintering better on this feed than those did that gathered their own stores.
R. WILKIN.

The testimony seems to be for feeding all at once; and if one wished to make a limited quantity of stores go as far as possible, I believe I should favor feeding all at once. One may feed quite a large quantity of sugar to a colony by giving them a pound of syrup daily, and not have it make very much showing. I remember once that I fed a colony that was about destitute, in August, syrup to the amount of 20 pounds of good sugar. Of course, they stopped going to the fields unless it was for pollen, and devoted their time and energies to brood-rearing; but when winter came they had very little more than when the feeding was commenced. Then I had to give them a big lot all at once, to fill up their combs for winter. Perhaps friend Boardman has got pretty near the truth of it when he says two to three pounds per day, *especially* if the colony is too weak in bees.

QUESTION NO. 86.—*Have you ever practiced outdoor feeding? If so, have you found it profitable? If not, why? Give your reasons briefly.*

Yes. In the early spring. Yes, when judiciously done. **MRS. L. HARRISON.**

No; but just at the present time I am peculiarly interested in that subject. **O. O. POPPLETON.**

Yes. I am in doubt about it, on account of the activity it induces. I wish I knew for certain.
H. R. BOARDMAN.

This seems to mean feeding for the purpose of having honey stored. That is one of the things which I have never been guilty of. **E. E. HASTY.**

Yes. No. The weaker colonies get little of the feed; the neighbors' colonies get much of it, and it creates a row generally. **G. M. DOOLITTLE.**

No; because I don't like to feed the neighboring bees, and the colonies needing the feed most would very likely be the ones that would get the least.
DR. A. B. MASON.

I have not practiced it enough to answer intelligently; but I think, from what I did feed, that it can be done profitably under favorable circumstances. **R. WILKIN.**

No. We don't believe in it. It attracts robbers, and you are as liable to feed your neighbors' bees as your own. Besides, the strong and rich colonies take more than the needy ones. **DADANT & SON.**

I do all my feeding outdoors. If, however, you mean outside and away from the hive, I answer that I have tried it and found it unprofitable. There seems to be a loss somewhere.
GEO. GRIMM.

I am opposed to outdoor feeding, because I can not benefit the colony or colonies that need it most, even if my neighbors' bees were modestly staying at home. Besides, it creates undue excitement.
CHAS. F. MUTH.

We have never practiced outdoor feeding. We don't think it profitable in feeding outdoors. Those that did try it and those that did not would all have an equal chance. We feed only those that are short of stores.
E. FRANCE.

Yes. I have fed much outdoors. I abandoned it because others besides my own bees could get it, and some strong colonies seemed to be getting the lion's share, while weak ones, that most needed it, were getting little or none.
C. C. MILLER.

We have experimented with outdoor broadcast feeding. Under most circumstances it is dangerous, and does not feed colonies in proportion to their needs; and there are other objections too numerous to mention here.
JAMES HEDDON.

I have not practiced it much. It creates a good deal of excitement in the apiary. Some swarms get too much, others too little. Your neighbors' bees carry off more than you can afford to lose, and it stimulates robbing and fighting.
P. H. ELWOOD.

I suppose that feeding outside the hive is meant. I don't like it. My generosity is not big enough to impel me to feed all my neighbors' bees, and all the bees that dwell near me in forest homes. Were mine all the bees in the region, it would do when the weather is warm.
A. J. COOK.

Yes, but only in the spring, at which time I prefer it to all other methods for stimulative purposes. I do not think it a practicable way of feeding for winter, as some colonies will get more than they need, and others not enough. This is something of an objection in the spring, but it does not amount to so much. I like outdoor feeding in the spring, because it is far less trouble, and I think it does more good.
JAMES A. GREEN.

It seems, from the above, that the general testimony is not in favor of outdoor feeding, especially where neighbors' bees, or bees in forests, are near by. It is just about what I expected. But on the other hand I have never seen brood-rearing go on so nicely as it did when we fed grape sugar largely in the open air. We fed just enough to keep up brood-rearing, without having any of any account stored in the combs; and during a very dry summer it answered the purpose beautifully for getting pounds of bees for our bee and queen trade.

QUESTION NO. 87.—*On account of sickness and other reasons, I have neglected to feed my bees. There is not a pound of stores in their hive. It is now too cold to feed in this locality (Northern Minnesota); what shall I do to save my bees?*

Put them in the cellar and feed them.
MRS. L. HARRISON.

I have had no experience in winter feeding.
O. O. POPPLETON.

Winter in a good cellar, and feed candy over the top of the frames.
JAMES A. GREEN.

I think you would better give them candy, as directed in Root's A B C.
C. C. MILLER.

Pour honey or syrup into the combs, as directed in Quinby's "Bee-keeping."
P. H. ELWOOD.

If I were in your fix I would put the bees into a warm and dark cellar, and feed them there.
E. FRANCE.

Take them to a warm cellar, and feed them there with inverted tin cans. See 84. Or else give them candy in the cellar.
DADANT & SON.

This is a little too far north for me, but no doubt that some days warm enough could be had during which the bees could store the food.
PAUL L. VIALLON.

Feed, by all means, during the first mild spells you have, or take your bees into a warm room or cellar, and feed them as per answer to question 84.
CHAS. F. MUTH.

Give sealed stores from other colonies; or they may be wintered on candy placed over the cluster, and covered closely to prevent the escape of heat.
H. R. BOARDMAN.

Take them to a warm room or cellar, and place cakes of Good candy over the frame or frames of the same in the hive. I have even given frames filled artificially with sugar syrup to bees in winter, and succeeded well.
A. J. COOK.

I do not feel competent to give the best advice as to what I should do after it is too late to practice my preferable methods. The thing to do is to feed in time. I believe I should destroy the bees and take care of the hives and combs in such a case.
JAMES HEDDON.

If there are no combs full of honey to be had, take your bees into a warm cellar or dark room, and feed in the comb or by feeder. Remove for a fly every warm day. Or, better still, buy comb honey and place over the frames close to the bees.
GEO. GRIMM.

Make the Good candy, as given in a late number of GLEANINGS, and lay it over the cluster, on top of the frames. Give enough to last 2 or 3 months at a time, otherwise you will be likely to kill many bees in putting on, as they will be on top of the frames at the second feeding.
G. M. DOOLITTLE.

I don't know of any way to save starving bees, except by feeding; and if it is too cold to feed, I should think that would end the matter. It might not be too cold in a warm cellar to feed; and in such case, good sealed stores set in by the side of the cluster would save them.
DR. A. B. MASON.

Choose as warm a day as you can. Wake the bees up thoroughly by the use of smoke. Take out half their combs, selecting the lightest ones. Fill these combs with warm honey by pouring it upon them in fine streams. Let the combs hang till done dripping, and then return them to the hive. Also put a good supply of lumps of candy under the enamel, upon the tops of the frames.
E. E. HASTY.

By feeding a thick syrup in a warm room in the hive, as I have suggested in feeding, and by placing candy over and between the combs, they may be saved, or at least a portion of them could be so fed; and if they seemed likely to have dysentery from such feeding without flight, take the stored honey from them and give to the bees that were not fed. But probably the better way would be to let them die, especially if bees can be bought in the spring for five or six dollars. R. WILKIN.

The general testimony in the above seems to be pretty unanimous. If we have sealed combs of stores, by all means use them; if not, I think I should prefer the plan given by Hasty—filling the combs with warm syrup. Bees can be kept nicely on candy alone, if they are looked after occasionally, to see that they are getting the candy dissolved and stored in the combs to some extent.

HEADS OF GRAIN
FROM DIFFERENT FIELDS.

FRIEND DOUGAN TELLS US THAT BEE CULTURE IS ADAPTED TO OUR SWARTHY BRETHREN OF THE FOREST.

DEAR BROTHER ROOT:—In GLEANINGS for Sept. 15th I have this moment read Mrs. Harrison's letter about "Bees Among the Indians," which calls to mind my own observations while in Indian Territory. In 1873 I introduced the Italian bees to the country now occupied by the Great and Little Osages. Then there were no wild bees in that part of the Territory, and I had no trouble in raising the prettiest of Italians by the liberal use of sugar. Thirty or forty miles from the valley, in which Osage Agency is located, wild bees filled the air with music over every blooming bush. Here many mixblood Indians kept bees in sections of hollow trees. In the northeast part of the Territory, on the reservation belonging to Quapaw Agency, and where the Senecas, Wyandottes, Shawnees, Peorias, Ottawas, Quapaws, Miamis, and Modocs are located, natural honey resources are abundant, and so are wild bees. A white man, a Shawnee, and myself, cut seven bee-trees among those Indians in one day. In this part of the Territory, Indians, halfbreeds, and whites who have Indian families, keep common bees in nail-kegs, soap-boxes, hollow logs, and movable-comb hives. I have seen two apiaries of more than fifty colonies each on movable combs near this agency, and in either of which most missionaries and Indians could take profitable lessons in the use of frame hives, comb foundation, and honey-extractors. W. MCKAY DOUGAN, M. D.

Santee Indian Agency, Nebr., Sept. 29, 1888.

I am very glad indeed, friend D., to receive these encouraging reports of the adaptability of bee culture to these savage tribes. I should be very glad indeed to receive communications from any of our dusky brethren who are making a start in our favorite industry. Can any of the friends tell us more about it?

CALL THINGS BY THEIR RIGHT NAMES.

I have now closed out my sales, and aggregated my crop honey of 14 colonies for the season. I find it stands: Sold 793 lbs and received $114.72. I will say, I am largely indebted to the manna of heaven *to the bees*, properly called honey-dew, for the large turnout this season. By the way, can't you, Mr. Editor, teach our own fraternity to speak a little more respectfully of honey-dew? It would be enough for envious outsiders to underrate our products by calling it "bug-juice," in order to disgust the stomach of the consumer, let alone our own selves. It neither sounds smart nor refined to so speak, and try to raise a suspicion that there is something wrong with every bit of honey that happens to be a little dark. And whom can we blame, if we persist in calling our honey bug-juice? I can't see where the juice comes in, appropriately.

If I take a bee-paper, I don't want to be put to the trouble of hiding it away if a neighbor or customer comes in, for fear he will open on some page speaking of somebody's bees making bug-juice. If it is a fact, or there is any thing unclean about it, we should keep it to ourselves. S. DANIELS.

Pine Grove, Ohio, Oct. 6, 1888.

Friend D., it may be a consolation to you to know that you and Prof. Cook so nearly agree in this matter. See editorial in another column.

THE EFFECT OF THOROUGH RIPENING ON UNPLEASANT FLAVOR OF HONEY.

During the months of July and August my bees filled their hives with honey which is almost as strong as Indian turnip. It burns the mouth and stomach for hours after eating it. I am extracting now, and shall have, when through, from 50 to 75 gallons of this honey. Can you tell me through GLEANINGS from what it was gathered, and whether or not it will lose this acrid taste?

Stony, Tex., Sept. 29, 1888. S. G. CHRISTOL.

Friend C., we can not tell from what source the honey you sent came. This you can probably determine by watching the direction the bees take in starting out when gathering this honey. Follow up the bee line indicated, and you will probably not have to go more than a mile or a mile and a half to find out what they are working on. If you do not know the name of the plant, send it to us and we will name it for you. The honey has an unpleasant flavor about it, and leaves an unpleasant feeling in the throat; but we think, after it has become thoroughly ripened—that is, after it has remained on the hive for 3 months or so—that its quality will greatly improve. Most of these disagreeable flavors disappear wholly or in part in honey that is unpleasant-tasting when first gathered.

ALFALFA AND ITS HONEY.

The following is an extract from a letter written to a member of Dr. C. C. Miller's family. As it contains something in regard to alfalfa, we thought best to publish that part of it.

Our neighbor, Mr. Small, sent us in, the other evening, some alfalfa honey from the State Agricultural College, of which he is one of the regents, situated at Fort Collins. It is of a lovely light color, something like white clover, and is delicious in taste. The alfalfa yields from three to five crops during the summer, of course blossoming freely every time. Nothing stands our dry climate as it does, as the roots go very deep—sometimes twenty feet, I have read, though I am free to confess I never followed one down to that depth. This is quite a dissertation on alfalfa, but I wish your bees could "have the run" of a thirty-acre patch that I can see from my window. They are cutting it for the last time, and its vivid green contrasts strongly with the brown cactus-covered plains around it.

South Pueblo, Col., Oct. 12, 1888. EMMA.

MYSELF AND MY NEIGHBORS.

Whosoever will be great among you, let him be your minister; and whosoever will be chief among you, let him be your servant.—MATT. 20: 26, 27.

IT was Sunday morning, Oct. 21. When I first got up I read in the Bible until I felt that I needed exercise, then I took a walk through the growing crops of celery, turnips, etc. I believe I helped my good wife get breakfast, and assisted in getting the children ready for church, to a certain extent. I do not think I did very much in that line, however. Then about an hour before church time, to make sure I should not get drowsy during the sermon, I took a good solid nap. I do not have my nap on Sunday *before dinner*, because it would be inconvenient; but good old dame Nature is so kind and accommodating as to permit me to sleep soundly from half-past nine till half-past ten, providing I get up in pretty good season on Sunday morning, and read and take exercise enough to be ready for this little rest. On this particular morning I remember feeling especially strong and vigorous, both in mind and body. Had it been a week day I should have been in good trim to direct a great lot of business, and read quite a heap of letters. As it was, I was in very good trim indeed to listen to a sermon. The one who was to preach for us, however, was prevented from coming, and in his stead sent a theological student from Oberlin College. I think the boys call these students "theologs," for short. I was interested in him at once, because he seemed so young and so boyish. My friends, it is a grand thing to see a boy step into a man's place in any department of life. We who are older have learned to expect something *boyish* from a boy; and I hope, too, we have learned to let a kindly charity take the place of any sort of criticism. It was a boyish sermon, delivered by my old friend brother Reed, years ago, that first stirred me up to a sense of my responsibilities. God bless our boys who are to be found in our schools, on the farm, in the factories, or in the *pulpit!* When our young friend announced for his text the one I have given above, I felt pleased at the outset, for this matter of service has for years been one of my favorite subjects. Now, friends, I am going to give you the principal part of that sermon; and I want you to sit by my side and listen to it, just as I listened last Sunday. I want a privilege, however, that ministers do not often grant. I am going to take the liberty of commenting occasionally when our friend comes to some point that especially enlists my sympathies. It would not answer to do this were we sitting in the church before a veritable pulpit; but under the circumstances, as it will not *interrupt* him at all, he has kindly granted me the privilege of using his sermon as I choose.

The circumstances to which the words of the text refer are these: Two of the disciples, James and John, together with their mother, went to Jesus with the request that the two be given seats at his right hand and at his left hand, when he should come into his glory. Of course, if they had the nearest places to him the rest would be crowded a little further away; and in their ambition to become *great*, or to receive *great places*, they entirely ignored the rest of their brethren. From this little incident, the preacher takes his text, and heads his sermon as below.

GENUINE GREATNESS.

"People that live in glass houses shouldn't throw stones." If this old proverb were not so exactly true, we might just now have a good laugh at this picture of foolish James and John. For ridiculous enough it seems, that two ignorant fishermen should be asking for an eternal seat at the right and left of the throne of God. But, foolish as this question may appear, we are forced into solemn meditation rather than mirth when we come to look deeply into it; for we find in the picture a mirror which reflects our very selves. For this James and John, here, give us a capital illustration of self-seeking ambition; and this selfish ambition is a fire that either lurks or burns in nearly every human breast. Few men have ever lived through a life without a deep desire to become recognized by the world as great in some sense of the word. And when we come to examine the context more closely we find that this was not an altogether unnatural request for these two disciples to make. They evidently had some ground for what they did, for not long before, Jesus, in talking with his twelve disciples, had made this promise: "Verily I say unto you, that ye which have followed me in the regeneration, when the Son of man shall sit on the throne of his glory, ye also shall sit upon twelve thrones, judging the twelve tribes of Israel." So, now, as Jesus tells them that the hour is drawing very near when he is to be glorified, these two brothers think it a good time to apply for the chief seats in the kingdom. Perhaps they had what they considered a good reason for asking; but evidently, from the reply given by Jesus, their main motive was selfishness. They desired to gain these places of honor that they might seem greater than others.

The remarks which this request provoked on the lips of the ten, but serve to strengthen the statement already made, that ambition is a common passion. They immediately undertook to reprove the two brothers, and thereby revealed to the keen mind of Jesus that they too were ambitious. The words of James and John had made them ashamed of themselves, and in a twinkling they had unconsciously flashed out to Jesus the whole secret of their own hearts. And what does Jesus do? This: Instead of reproving them violently, he quietly turns their minds into other channels. He does not condemn ambition, but tells them forthwith that there is here a false and a true, as in every thing else. He shows how utterly opposed to each other these are; how desire for the greatness of this world leads only to selfishness, while the whole principle of true greatness lies in self-sacrifice. There is an ambition, he tells them, that ends only in purifying and elevating the world, and in bringing the kingdom of heaven to earth. "It is right and good," he says, "for you to desire to be great. This desire has been planted deeply in your very heart of hearts by the Creator; but, only be careful that your idea of greatness is the correct one; only see to it that you do not turn aside the strength that the Lord has given you until it become weakness and death. Remember that ambition is a fire, which, uncontrolled, will burn out your life; but controlled it will keep you warmed for noble action." Then, "with an egoism which," some one has said, "can be justified only by his consciousness of divinity," he ends by holding himself up as the only embodiment of true ambition and genuine greatness. "Follow in my footsteps," he says, "and you too shall become truly great."

Genuine greatness, then, is my theme for this morning. And now to specify some lessons herein contained, it is evident:

1. That the world has its own ideas as to what constitutes greatness. This, Jesus implies when he says, "Ye know that they which are accounted to rule over the gentiles exercise lordship over them; and their great ones exercise authority upon them." This plainly expresses the popular idea of greatness. It is to exercise authority of some kind that is to be held meritorious for some act or word. There is no way of defining so general a conception as greatness, yet we may say that it "always denotes pre-eminence of some kind." If you should undertake to give me your ideas as to just what constitutes greatness, no doubt there would be a vast difference of opinion. Some would associate it with the triumph of the warrior, and would hold up such a man as the late General Sheridan as their ideal; others would think of eloquence, or proficiency in music or art, and would name such men as Gladstone, Handel, and Raphael; others would mention the thorough scholar of wide research, such as Humboldt; very likely Goethe or Milton would be the model of true greatness to some one of a poetical turn of mind; and to those who worship at the shrine of wealth, a Rothschild or Vanderbilt would seem to leave nothing to be desired. Few, oh how few! would think of mentioning the lowly Man of Nazareth! Indeed, I have preached to audiences, and have said that Jesus Christ was the greatest man on the historical page, and have seen smiles and heard sneers in reply. A celebrated literary critic has well shown his idea of greatness in saying that Jesus Christ never uttered an original word—as though to be original is to be truly great.* O friends, we are so narrow, so egotistical, so foolish, and unacquainted with every thing that is truly noble and worthy. The rich are only too often full of sneers for the poor, and the college graduate is so likely to look down upon the unlettered man. Ah! we must learn that genuine greatness is something that lies far removed from occupation or position in life. We must come to recognize the fact that ditch-digging and driving railroad spikes, or digging potatoes and peddling milk are just as honorable occupations as preaching the gospel, teaching Greek in the college, or controlling large banking interests.†

There is, as some one has said, a continual cry in these days to "rise higher;" as though every man could be expected to possess so much money, or, leaving his shovel and pick, to enter the schools and go through to graduation. This cry is becoming a curse in the sense it is used. It is creating a restlessness in the world at large. The great solid mass of men that lies at the base of all society feels that it is degraded and looked down upon, and wrongly treated; and with as false conceptions of true greatness as have those who sneer at them, they are breeding dissatisfaction day by day in their endeavors to gain notoriety or wealth. And yet how foolish it is! All these positions must be occupied. Those in wealthy and intellectual circles can no more live without the under classes that drudge and dig than they can live without air and water. Neither can those who are obliged to carry on manual labor live without those capable of directing their efforts and of carrying on the complex and world-wide affairs of commerce. Therefore for the "upper and lower classes," as they are falsely called, to scorn each other is wrong.‡ True genuine greatness dwells in the valleys as well as on the mountain-top. In the popular sense it is impossible for the vast majority to "rise higher." There is not "always room at the top." Let us then cease to lay false and rigid requirements on each other, irrespective of station in life. Let the word always be. "You are as good as I," and not, "I am as good as you."*

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* Until the point embodied in the above, I was not only in perfect accord with the speaker, but I had been fondly thinking he had uttered no thought but I myself had given before; but at the suggestion that *originality* is not *greatness*, I began to examine my own heart. Perhaps some of you may know that I have for years prided myself on my originality. The matter which fills the pages of GLEANINGS is nearly all original. The title of our bee-journal, our methods of advertising, etc., are almost all unlike those of the rest of the world; but never, until this present moment, did it occur to me that I was taking *pride* in all this. I had been fondly thinking, that to be original is to be great. May God forgive me if I have been unconsciously using a gift that *he* has *given*, in a way to give others pain. Several brothers have of late spoken of our manner of advertising, by saying, at the end of the advertisement, "Nothing patented." It is true, I have a perfect right to give my inventions to the world, without getting patents, if I choose; but I have not a right to advertise that I do this, in a way that will crowd upon any brother. I delight in being a servant; I delight in serving my fellowmen; but I do not want to monopolize in any thing, nor do I want to use any expression that would indicate I love *power* or *authority*.

†At this point I felt strongly that God laid upon my shoulders a responsibility, and that, if I did not say "amen" I shouldn't be doing my duty. It is very seldom if ever that anybody in our church besides myself says amen to any point the minister may make, although we frequently have amens in our prayer-meetings. I have sometimes wondered why God should lay this responsibility on me and not on others; but very frequently points in sermons come up, whereon I feel that I am in duty bound to respond. I have examined my heart, and I am sure that I do not say amen because I take pride in being thought singular or original. There are times when it seems to me it is cowardly to let the speaker feel that he is alone in his opinion, and that he has no backing. Some years ago our pastor, in his sermon, declared it was his belief that the saloon that did business only a few doors away from our church would be banished by public sentiment inside of two years. I felt then that the time had come for me to second his declaration with a loud amen. The thing that he predicted came to pass, and I am not sure but that my amen *helped* to bring it about. In the same way I feel called upon to say amen to the statement that digging potatoes is just as honorable as preaching the gospel, or controlling large banking interests. May God be praised that it is my *privilege* to dig potatoes, at least part of the time. I wonder if we shouldn't hear an amen from brother Terry, if he were near enough by.

‡May God help us in this our time of trial with the labor strikes, the anarchists, and the conflict between labor and capital. Lord Jesus, help us all; and help me to remember, through my daily toil, that, without labor, capital would be nothing; and without capital, labor would be nothing; and may his great love so fill all our hearts that he who controls the banking interests may feel neighborly and friendly toward the one who digs potatoes or who digs ditches by the sweat of his face.

Now, with regard to these false standards of greatness we may well observe:

1. That they are generally attained only at the expense of others, and sometimes only through contention and strife. As we have just remarked, every one can not (in the popular sense) be great; some must, therefore, remain unconsidered. Darwin's principle of the survival of the fittest applies exactly here. In the effort for fame or wealth, the weak go to the wall. In an ideal state of society this should not be so; but as it now is, we hear the cry continually, that, as the rich grow richer the poor grow poorer.† The capable ones clamber over the shoulders of the incapable, and groans from the laboring classes are the natural result. And until divine law thoroughly permeates society this can not be otherwise, for we are in a limited world. Each man has not an infinite stretch of opportunity before him. If in a family of moderate means there is a child whom the parents wish to thoroughly educate, there must at once begin a system of stern self-denial on the part of all the rest. If in school that child wins distinction it is because he has marched right up the line past his fellows. For it is not because he has won a good mark, but because he has proved himself better than his comrades, that he becomes in a sense great. Surely this state of things is any thing but refining. There may be an element of greatness in it; but, oh what misery it leaves in its track! The winning of worldly distinction is all on very much the same principle that Napoleon practiced when part of his army was forced into the ditch that the rest might march over them to victory;‡ but what victory! Ah! this is not the divine ideal of greatness, surely. Jesus was not the author of contention.

2. And, again, it may be remarked that men with these false ideas of greatness often seek for what they would not wish if they could see into the future. When James and John asked for the seats on the right and left of Jesus in glory, Jesus told them that they knew not what they asked. And when, a few days after, they found that the glory of Jesus was crucifixion, and that the right and left of that would have meant hanging in terrible pain in the places occupied by the two thieves, they saw how foolish their request had been. And so has it ever been, except that men have often been permitted to partially realize their desires only to see them fade into shadow in the end. If Napoleon had at the beginning of his career been allowed to see himself stripped of glory and pining away in exile at St. Helena, it would have robbed him of much of his ambition. If the youth just starting in the selfish pursuit of wealth could look through fifty years and see with certain eye that his soul would be shriveled and bound to mammon, for ever shutting him away from a righteous inheritance in the kingdom of heaven, he would seek its blandishments less eagerly, and put out his foot more carefully. If the God-fearing student who has begun to imbibe the "scientific spirit of the age," and to dabble in false philosophies, could pierce the future and see at the end of half a century that he had reasoned away his God; had, to his mind, proved the Bible a farce, and thus destroyed all the nobler sentiments of his nature, and blasted his hope of eternal life, he would care less for any worldly renown that such a one-sided learning might bestow upon him. Alas, the risks that attend these carnal strivings! There is many an aged man who has gained some measure of distinction, to the great detriment of eternal and deeper interests. A carnal ambition for greatness has eaten out the very core of his soul. Alas, that opportunity and innocence should come to such an end! But Jesus never sowed the seed of an ambition which brings ruin, or of a greatness which, like the apples of Sodom, turns to ashes at the touch.

3. But, once more be it observed that so-called greatness brings dissatisfaction. Strange as it may seem, it is nevertheless the truth, that those men who have won the greatest renown have generally died disappointed with life. And this results from having set up an unattainable standard, and from having violated conscience and all the higher laws of being in the vain endeavor to attain it. Look at Solomon in all his glory, having obtained all wisdom and wealth, yet at the last moaning out, "All life is vanity and vexation of spirit." And Solomon is a good index to humanity. Life and literature are continually pouring into our ears tales of disappointment and vexation. Literature, art, music, wealth, all lack that deep principle which alone can breathe satisfaction and peace into a soul. For this principle we must look away from earthly ideas to heavenly; and this suggests the next observation—

That Christ's idea of genuine greatness is directly opposed to all these mentioned. Christ came to earth and found society all out of order. No man seemed to have the *least idea* of true nobleness of conduct. He found the train off the track, and pounding over the ties in its mad rush to destruction. He found men's lives growing up in the form of a pyramid well grounded on earth, but running to a point in the air.§ These he righted; he laid down principles in life which were revolutionary. The train, he placed on smooth-running rails; he told men to turn over their lives—to place the pyramid on its apex, and then, as they grew in height of years, they would grow broader, and take in finally the whole sweep of God's plans.‖ He took a little child and placed it beside the grandest monarch, and the monarch was only as a morning cloud passing away. He told those aspiring for heavenly thrones, that to be great is to be servant of all, and then illustrated his meaning by washing the feet of his disciples. Humble service it is, that triumphs over all else, and wins for a man the only greatness true and enduring. It is loving the Lord thy God with all thy heart, and thy neighbor—thy *poor* neighbor; thy *ignorant* and *wretched* neighbor; thy *hateful backbiting* neighbor, with a love so strong that one will do whatever lies in one's power for his welfare—*that* brings out a man and makes him great![*]

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* May God bless our young friend for the thought herein expressed. Just think, dear reader, how funny it would sound, when neighbors are feeling harsh toward each other, to say, "You are as good as I," instead of "I am as good as you." May God help me to remember this when I am vexed.

† Dear reader, is this true in your vicinity and neighborhood? If it is, then it is because Christ Jesus has departed from your midst and from your homes instead of growing into the hearts of men and women. Help us, O Lord, that this may never truthfully express the progressive sentiment of any neighborhood.

‡ Is it really true, that such an event in history did actually happen? From what I have read of Napoleon I can readily believe such a course might be a part of his march to victory; but may God grant that no age of the world may evermore see the time when men shall crowd on to victory over the suffering bodies of their fellow-men.

§ Dear reader, is *your* life drawing narrower and narrower as old age creeps upon you? God forbid.

‖ Let us all reverse that pyramid, if we have not done so already; and instead of having our lives taper toward a point, as in the figure, let them grow broader and wider until we can in very truth take in the whole wide world as *Our Neighbors*.

This law of *service* does away with all contention and strife, and in a state of society where it rules you will find no complaining, no mourning, no bitterness, no standing on each other's shoulders, for each man is looking out for his *neighbor's* welfare and not his own. Here each can be ambitious, but the ambition is to *raise* a fallen *brother* and not to beat him down; the ambition is to cheer the desponding with kind words and helpful deeds; to ease suffering by providing for the needy and to promote progress in the world at large by extending the laws of love as laid down by Christ. I know just how the world looks upon this genuine greatness. Self-seeking men sneer at it and think it not worth noticing. The historians of Christ's day are all but silent on the words and works of the Son of man. They thought him hardly worth noticing. What was he but a carpenter and stirrer-up of seditions? He wrote no literature, he built no showy mansions. To-day when a man who has won renown on the battlefield dies, the nation wears crape, and the newspapers devote columns to his history; but some such man as the venerable missionary Bishop Taylor, the secular newspapers will scarcely notice, at his death. The world will not take notice of great self-sacrifice, or if it does it imputes false motives to the man exercising it. The *world* can never quite satisfy itself that there is such a thing as goodness, pure and simple; but in the words of Victor Hugo, "When they see such a servant making money they say, 'He is a man of business;' when they see him scattering his money about they say, 'He is an ambitious man;' when they see him decline honors they say, 'He is an adventurer;' when they see him repulse society they say, 'He is a brute.'" But what of all this? Did not Jesus say, Blessed are ye when men shall revile you, and persecute you, and shall say all manner of evil against you falsely for my sake? We must remember when we give up ourselves to service true and loyal, that, though we have cut away from all hope of being lauded by the world, we have thrown ourselves into the eternal and right order of things, and that in losing ourselves we shall truly *find* ourselves. But after all, in the long run there is more genuine power, and that which will provoke admiration in genuine goodness, than in all the glories of the world combined. Although historians of Christ's day thought him not worth noticing, he nevertheless shines in the life of the world with ten million times the brightness of Pliny, Josephus, and Tacitus. True greatness must shine in the end: it can not be hid.

Men of the brightest genius stand baffled before it, and can only fall down and worship at its footstool. Surely, as the world judges, a more brilliant man, or a man more awe-inspiring, has never lived than Napoleon; yet Napoleon, in comparing his own greatness with that of Jesus Christ, said this: "Alexander, Cæsar, Charlemagne, and I myself, have founded great empires; but upon what did these creations of our genius depend? Upon force. Jesus alone founded his empire upon *love*, and to this very day millions would die for him. Across a chasm of eighteen hundred years Jesus Christ makes a demand which is beyond all others difficult to satisfy. He asks for the human heart; he will have it entirely to himself; he demands it unconditionally; and forthwith his demand is granted. Wonderful! In defiance of time and space, the soul of man, with all its powers and faculties, becomes an annexation to the empire of Christ."[†] Is not that genuine greatness which can wring from a man like Napoleon such words of praise? Napoleon in gaining his renown made countless thousands miserable. Jesus has never invaded any district without leaving it purer and happier. Service, self-sacrificing, humble service! oh how grandly did Jesus exemplify this corner-stone of his kingdom! Through life he healed the diseased, fed the hungry, and raised the dead for bleeding hearts. His life was only one *continual service*. And to whom? To the world, to the world of degraded sinners utterly unworthy such service. And why did he serve them? To ransom them from sin and eternal death. "For even the Son of man came not to be ministered unto, but to minister, and to give his life a ransom for many." Ah, there was the culmination of his service, the giving of his life. He laid down his life for his enemies, and greater love hath no man than that! We wish that there were time and space to dwell upon this greatest of all services; but we must let it pass with one observation. In our service for our fellow-men we shall not win that greatness which God wishes to give us; we shall not benefit our brethren greatly until *we too*, like our Master, become so thoroughly consecrated and deeply devoted to his blessed cause as to lay down our very lives for those who are perishing. Brethren, the great atonement was completed on the cross of Calvary, yet we have that atonement in charge. The inexhaustible power of it we must take into our hearts, and then shall we be able to get *down*, DOWN to the very *secret springs* of eternal *success*, and a greatness that shall dim and hide all worldly glory as the rising sun causes the stars to pale and hide themselves. And this leads me to the last remark: That only one motive is strong enough to procure for us this greatness. That motive is to be found in the cross of Christ, in the ransoming Lamb. There are too many mixed motives in this world. Alas, there are too many motives that hold sway in a Christian's heart, that are only false and degrading. "Dr. Bonar once had a dream that the angels took his zeal and weighed it. It was full weight, plump 100. He was much pleased. But then they began to analyze in various ways, and found 14 parts were selfishness; 15 parts sectarianism; 22 parts ambition; the whole melted away, and but three parts were pure love to man, and four parts love to God. He was greatly concerned, and well he might be, that but seven parts were purely good." Just so! The fork in the road at which the paths of Christian and Worldliness separate lies right at the foot of the cross. The man who is content with the shallow fickle praises of men, goes right on doing this and that good act, or restraining this and that passion, because the eyes of the world are upon him. He must not swear and drink when in the presence of his brothers, because they are listening; but let him be alone, and what is to hinder? But the Christian has entered a life which has a motive as fixed as the sun is in the skies. Whether at home or abroad, whether in society or in a forest a thousand miles distant from any inhabitant, the faithful Christian must restrain the lust and evil word "for Christ's sake," because he gave his life as a ransom.

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[*] I did not say amen out loud to this last exhortation to a Christlike life. I was almost afraid to say amen. I have not lived up to it as truly as I did to the point made when I said amen in the opening of the sermon; but I do now say amen; and not only that, my little prayer wells up, Lord, help. Help me that I may in time get up with the high degree of Christian living, that I may love my neighbor, no matter who he is, so long as he is a fellow-being.

[†] Napoleon was probably a heartless man; but from the above quotation, I gather that few men have lived who have had a better conception of what it is to be a Christian than he; and that one thought he has given us, that the Christian finally becomes himself an annexation to the empire of Christ, is one of the brightest and most beautiful expressions that to my mind have ever before appeared in the English language. The word "annexation" expresses it as no other word does that has ever been coined. When we are an annexation to this empire, then we as neighbors are one, and strife and selfishness are gone for ever.

"*For Christ's sake!*" that is our impulse. I am to sacrifice my all because Christ died for *me* individually. There can be no true morality, there is no real service, there can not be genuine greatness which does not spring from that source. Every loyal Christian should *detest that spirit* in any man which makes him a *policy* man; a mere seeker of worldly ease and human compliment. Our duty it is, and it should be our pleasure, to lead just as many as possible into the light of this eternal Sun of Righteousness. If we devote our lives to this occupation, men may take less notice of us; but what are men when God stands calling from on high? The motto on the coat of arms of the Prince of Wales is, "Ich dien," *I serve* — a most *princely* motto. Ah, yes! my brother, if your ambition is to become great, and surely it is, if there is any thing valuable in your make-up, then humble yourself, gird your loins with a napkin, and wash the feet of humanity; would you become great? then cut yourself away from all this "sham and shoddy" world, and take into your heart that principle of joyous sacrifice which unfolds year by year into all that is elevating both to yourself and the world. Remember that you lift humanity only by getting underneath it, and that in the end Heaven swings wide her gates of pearl only to those who approach with bowed heads. No matter what *the world may say*, for ever graven into the adamantine rocks of time are these words: To selfishly rule is to die; but to lovingly serve is life and peace everlasting.

REPORTS ENCOURAGING.

BEES HAVE PAID $5.00 PER DAY FOR THE LABOR EXPENDED UPON THEM.

FROM 45 colonies, spring count, I had 5 stolen by thieves who made their inroads upon me in the night. From the remaining 40 I have saved 35 swarms, after having 10 to starve in June, 5 to run to the woods, and one to smother, while trying to abscond through a metal guard the whole width of the end of the hive, with one row of perforations. I took 1950 lbs. of honey, mostly comb, and sold my entire crop within two weeks after taking it from the hives, to consumers in my home market, at a net price of 15 cts. per lb., and I am receiving from one to five calls each day for more of that honey.

I have made an exhibit of bees and honey at our district fair for five consecutive years past, and I have been fortunate enough to secure the first premium of $8.00 each time. I am one of your enthusiastic A B C class, and when about 21 years of age I became fascinated with what was related in a few sample copies of GLEANINGS. I purchased two swarms of bees, made my own hives and fixtures, and have grown up with the business by following closely the instructions in your A B C and several of the leading bee-journals. I have sold nearly a third of my apiary each spring, and have made them pay their way, and I roughly estimate that they have paid me more than five dollars per day for each day's work bestowed upon them.

Lavaca, Ark., Oct., 1888. W. H. LAWS.

11,000 LBS. OF HONEY FROM 145 COLONIES.

I started with 85 colonies at the home apiary, for extracted honey, and 4 for comb honey. I also had 56 colonies that I took on shares, six miles away. Four of them were for comb honey. I have taken 11,000 lbs. altogether—10,600 extracted honey, 400 of comb. They are all in good condition for winter. I have increased to 176. The extracted honey I have sold at an average of 6¾ cts. per lb.; about 3500 of it was fall honey, heart's-ease, and buckwheat. ROBT. QUINN.

Shellsburg, Ia., Oct. 10, 1888.

SPANISH NEEDLE AS A HONEY PLANT.

My bees have done well this fall. They will average 50 lbs. surplus per colony, spring count, Spanish-needle honey. Why is it that I never see any one speak of Spanish-needle honey? We think it very fine here. Like your basswood, it lasts only from 6 to 10 days, yet a strong colony can hardly get in and out at the entrances of our hives fast enough, so eager are they. J. J. MCCOY.

Mt. Erie, Ill., Sept. 24, 1888.

NEIGHBORHOOD REPORT.

First neighbor, spring count, 70 stocks; 600 lbs. comb.

Second neighbor, spring count, 85 stocks; 1200 lbs. comb.

Third neighbor, 60 stocks; 1500 lbs. comb. Myself, 100 stocks, spring count; 4500 lbs. slung honey. Honey is quoted at San Francisco, comb, 8 to 13 cts; slung, 4½ to 6 cts. Beeswax, 16 to 20 cts. My bees are in high condition, 150 stocks. B. C. VANDALL.

Woodside, Cal., Sept. 30, 1888.

55 LBS. PER COLONY.

I have taken, on an average, 55 pounds of honey, from each of my hives. New comb honey is sold here at 20 cents per pound. AD. BERGT.

Hooper, Neb., Oct. 8, 1888.

REPORT FROM NEVADA.

Bees have done well in this section, more especially in August and September. I think the latter part of July they commenced filling the sections, and I have been pretty busy ever since until the present time. E. A. MOORE.

Reno, Nevada, Oct. 3, 1888.

OUR BOOKS AND OUR WRITERS ON GARDENING, ETC.

FRIEND GREENLEAF MAKES A REPORT AFTER HAVING PURCHASED SOME BOOKS.

DEAR UNCLE AMOS:—I don't like Gregory on cabbage, squashes, and onions. I read 'em all through, and am tired to death shoveling manure and trying to sell the unsalable things (all in my mind, you know). But Terry! His books nearly made me wild (what's the matter with him, any way?). I can't wait till spring to plant my potatoes. The boy in the stable doesn't know what to make of my sudden interest in feeding, watering, and cleaning out the horse-stables. I have taken the fork out of his hands, "just for fun." Why, bless me, I never knew it was fun to shovel manure before. I always thought it was hard work. "Pat," who takes care of our two cows, is patient, but looks at me with pity in his eyes. He has cared for cattle for thirty years. He thinks I am going to be insane. But any way, those cows must be fed, watered, and *carded*, on Terry plan, if I kill them both before spring. Are these two books all Terry ever wrote? If so, punch him up for *something more* before he dies or somebody steals him. If *he has*, send me the whole business by mail or express.

Why do you advertise "How to Propagate and Grow Fruit, Green, 25 cts."? I can do it without a book. What I want to pay 25 cts. for is to know how to grow 'em *ripe*. J. C. GREENLEAF.

Greenleaf, Mass., Oct. 24, 1888.

Friend G., I have been thinking for some time that Gregory's books ought to be rewritten and brought up to the present time. Terry's books are not only of recent date, but he has the rare gift as a writer of making everybody fall in love with intelligent farming, as well as caring for stock in an intelligent manner. His books affected me very much as they have you, and I believe our horses and cattle will always receive better care than they would have done had Terry's book not been written. Never mind the pity that Pat expresses in his face as he watches you. If your enthusiasm holds out until he sees the fruits of Terry's teachings, he will fall in with your plans, I am sure. Terry's treatment will not kill them. I believe the potato-book and the book on the winter care of horses and cattle are all the books that Terry has ever written; but he has plenty of material for a good many more. My impression is, that a great part of his lifelike enthusiasm comes from his work at farmers' institutes. He has fallen in love with his brother-farmers, as well as with raising crops; and I tell you, my friend, it is a hopeful sign when any of us fall in love with our neighbors—the common people right around us. We can send you the back volumes of the *Ohio Farmer*, *Country Gentleman*, *Rural New Yorker*, and some other papers containing Terry's writings; but I think we should have to send them by freight, as there are so many of them.—In regard to your last question, why, bless your heart, my good friend, when you learn to grow fruit *green* there will not be any trouble about growing fruit *ripe*, especially if the frost holds off. I am afraid you are not very well acquainted with our friend Green, who is as enthusiastic about fruits as Terry is about horses and cattle and potatoes.

THE IGNOTUM TOMATO.

ANOTHER OF GOD'S GIFTS.

TWO years ago the Michigan Agricultural College made some very thorough experiments in testing all the different kinds of tomatoes known—not only every kind advertised in our own country, but they sent for all the tomatoes they could get hold of from foreign countries. I think they tested over 100 varieties. The result of this laborious test was, that they recommended only a very few, perhaps a dozen, as being worthy of attention; and, strange enough, one of the most promising of this dozen came into their hands by accident. The seed of a particular kind of tomato was sent them from Europe; but only a part of the seed produced tomatoes according to description. The other part of the seed produced something else. Not having any name for it, they called it "Ignotum," or *unknown*—at least, so I have been told. Well, strange to relate, their verdict was (and I think it was Prof. Bailey himself who told me about it) that, should it behave another season as it had during the past, they would give it the first place among all the tomatoes on the face of the earth. Of course, I begged for a few seeds. These were granted to me, with the understanding that I was to report, and my report is ready. I secured perhaps a dozen plants. Two of the plants produced tomatoes perfect in shape, brick red in color, but only of about the size of plums. All the rest of the plants produced the same kind of tomatoes, only they were of large size, larger than any thing we have in common use except the Mikado. They are not as heavy as the Mikado, but they are as perfect in form as any tomato we have ever tested. Besides all the above, they are remarkably early. The first ripe tomato I picked in the open ground was from the dozen vines of *Ignotum*. It is remarkably free from rot, ripens all over alike, and each vine bears a *great quantity* of tomatoes. I do not know that we have any tomato in any respect superior, except the Mikado, and the Mikado excels only in size. Perhaps this is owing, however, to the fact that our Mikados of the past season were all from the seed taken from a tomato that weighed a pound and a half. The result of this selection of the seed gave us extra large tomatoes, but it did not mend the awkward shape of a great part of the tomatoes very much. To sum it all up, then, the Ignotum tomato, *in my estimation*, is ahead of any thing heretofore furnished by the whole world at large—at least, *so far as I know*. We have saved about two pounds of seed; and now comes the question, What shall we do with it? I do not feel at liberty to offer it for sale until I have permission from the Michigan Agricultural College. And then, again, how much seed have they, and what do they propose to do with it? Besides, it is quite likely that the Ignotum seed was put into the hands of a large number of *other* good people besides myself (I am afraid I have blundered into considering myself one of the good people of the earth. Well, if having a love for God's gifts, even in the matter of tomatoes, makes one good, I think I have a small claim). Who else can report in regard to the strange friend that has in such a strange way come to us from away off in foreign lands ?

CONVENTION NOTICES.

The Nebraska State Bee-Keepers' Association will convene at Lincoln, Jan. 9, 10, and 11, 1889. J. N. HEATER, Sec.

The Pan-Handle Bee-Keepers' Association will hold its next meeting in the K. of P. Hall, on Main St., between 11th and 12th Sts., Wheeling, W. Va., Nov. 21 and 22, 1888 All bee-keepers are cordially invited. W. L. KINSEY.
Blaine, O.

The next regular meeting of the Stark Co. Bee-Keepers' Society will be held in Grange Hall, Canton, O., Saturday, November 3d, at 10 o'clock A. M. Matters of importance to bee culture will be discussed. Every bee-keeper is requested to be present. MARK THOMSON, Sec.

The Alabama State Bee-Keepers' Association will meet at 10 o'clock A.M., Wednesday, Nov. 14, at the office of the Secretary of the State Fair (in Fair building), Montgomery, Ala. Members are urged to attend, and all persons interested in bees and honey are cordially invited.
J. M. JENKINS, Sec., Wetumpka, Ala.

GLEANINGS IN BEE CULTURE.
Published Semi-Monthly.

A. I. ROOT,
EDITOR AND PUBLISHER,
MEDINA, OHIO.

TERMS: $1.00 PER YEAR, POSTPAID.

For Clubbing Rates, See First Page of Reading Matter.

MEDINA, NOV. 1, 1888.

Whosoever shall exalt himself shall be abased; and he that shall humble himself shall be exalted. -MATT. 23:12.

WE have at this date, 8421 subscribers.

CONVENTION REPORT.

THE Report of the Proceedings of the last International Bee-Keepers' Association comes promptly to hand. It is published by Thomas G. Newman & Son.

A NEW HINT IN REGARD TO ADULTERATING HONEY.

ACCORDING to the *American Bee Journal* there are now reports started in the papers, that in Holland honey is adulterated with *oleomargarine*. This last is ahead of all other previous false statements. We have heard about glucose, old rags, boots, shoes, etc., being used as material for making spurious honey; but oleomargarine is ahead of them all. I wonder if the compositor or editor hadn't lost his dictionary, and intended to use some other word.

HONEY-JUMBLES AT THE COLUMBUS CENTENNIAL.

ONE of our men sold in a few days seven barrels of these honey-cakes, and could have sold a good many more had he been able to get them from the factory before the exposition closed. At one time he sold two barrels in about twelve hours. Now, the particular point about this lot of jumbles that made them sell, is, that they were a year old, and yet they were just as nice to eat as the day they were baked, and not one of the great crowd took a single exception to them. This is the great point in using honey for making jumbles. You can keep them just as long as you choose, and they do not get dry and hard, like cakes made of sugar or molasses. Possibly under some circumstances they may dry up; but by placing the barrel in the cellar, or anywhere else where it is a little damp, they will very soon become soft and delicious, and yet there is no danger of mold or any thing of the sort.

DECIDING YOUR COLONIES ARE QUEENLESS IN OCTOBER OR NOVEMBER.

THE veterans need not read this; but I want to say to the A B C class they must not expect to find brood or eggs in their hives at this season of the year. If you do, it will be the exception; therefore do not get excited, and send to us for queens, simply because you can not find them, nor eggs nor brood when you overhaul your hives now. We should be glad to sell you the queens, if they were really needed; but you do not need a queen now in northern localities, even if your hive *is* queenless. If there are plenty of bees, including the young ones that have been hatched, say in September, the colony will winter just as well without a queen as with one; but they ought to have a queen just as soon as March or April. In the South, where bees gather honey and pollen all winter, of course this rule does not apply.

APIS DORSATA, ETC.

OUR good friend A. Bunker, of Toungoo, Burmah, has just paid us a short visit, and we have had quite a talk in regard to the big honey-bee of India. He also brought us a bottle of the honey. The honey would rank with our poorest dark fall honey; but no doubt this big bee could gather nice honey if it had a chance. One queer thing about them is their habit of migrating from the jungles to the hills, as the season changes from dry to rainy. On this account they will perhaps be more liable to abscond than our native bees. Friend Bunker is very desirous of taking some Italians with him, to compare them with the *Apis dorsata* and *Apis Indica*. The natives have taken up bee culture with enthusiasm, with the aid of modern hives and implements, even including a foundation-mill. The latter does not work tip-top, however, because the cells are too large for *Apis Indica*, and too small for *Apis dorsata*. It may some time be worth while to make foundation to fit the size of these bees on the other side of the world; and it may be, also, that *Apis dorsata* will gather more honey here than even our Italians. It would be quite likely, however, to start its combs amid the tops of our tallest trees, instead of in hives prepared, and that peculiarity might create "unpleasantness."

"LET EVERY THING BE DONE DECENTLY AND IN ORDER."

AT our last convention, Prof. Cook entreated us as bee-keepers to forbear the use of inelegant words or terms that encourage prejudice against us as bee-keepers, or against our productions, and cited, as an illustration, this matter of calling honey-dew "bug-juice." Of course, we had to have a big laugh, even though we heartily concurred with his suggestion. Think of it, friends. What would be the impression on outsiders, to hear us using such terms as the one just mentioned? A good deal of so-called honey-dew is very fair honey; and not only is it fit for table use, but much of it is perfectly safe and wholesome for wintering bees. There has been prejudice enough already against our product, and that, too, without its being any fault of our own. Now, shall we not, even in our fun, be a little more dignified? The whole matter reminds me of Don Quixote and Sancho Panza. Sancho had so many proverbs for every event that occurred, that his master sternly commanded that not another proverb, maxim, or any thing of the sort, should be quoted. In a very short time, however, Sancho informed him that he had in mind a proverb that was wonderfully suggestive and pertinent to the occasion, and begged permission to give it, as it was so particularly apt. His master, however, insisted on his keeping his mouth shut, no matter how fitting the occasion. Now, dear friends, when this offensive word occurs to us again, let us do as did Sancho Panza, and not say it.

THE A B C OF BEE CULTURE, 37TH THOUSAND.

THE latest edition of our work is now out. It has been most thoroughly revised—more so than previous editions. It now contains 400 large double-column pages of closely written matter, and over 300 original engravings. It is almost needless to add, to those who have GLEANINGS, that the latter have been executed by the finest artists in the country. About 50 pages of entirely new matter have been added to the body of the work, to say nothing of other new matter inserted under various headings, to take the place of the old matter struck out. Besides this, 50 new engravings have been added. In 1880 we employed G. M. Doolittle to carefully read the A B C, and point out such faults and add such suggestions as his large experience might dictate. His comments have been found to be so valuable that we thought best to employ a no less practical and extensive bee-keeper, Dr. C. C. Miller, to perform the same task on the present edition. He did so, adding his comments, or suggestions, to the latter portion of the work. The experience of two such *every-day* bee-keepers, confirmatory, in the majority of cases, on various topics brought up in the A B C book, will be found to be exceedingly valuable to the reader. The subjects which have received the largest additions are Comb Foundation, Comb Honey, Hive-Making, Queen-Rearing, and Swarming. In the back portion of the volume are added 16 pages of short, terse biographical sketches, from the pen of Dr. Miller, the subjects being illustrated, in most cases, by those beautiful Ives reproductions. In consequence of the many changes, and the addition of matter, the index has been entirely re-written and revised, at the same time facilitating more rapid reference. In short, we have endeavored to make the work embody and keep pace with the best things that appear in the bee-journals. Nothing but that which is known to be *thoroughly practical* has been admitted to its pages. In other words, every subject has been treated from a dollar-and-cents point of view. Strict attention to this particular, more than to any thing else, has given the A B C enormous sales. Although we have added greatly to the value of the book, as well as to its cost, the price will be the same as heretofore—$1 25 in cloth; $1.00 in paper, postpaid. Deduct 12 and 15 cents less respectively, when sent by freight or express with other goods.

KIND WORDS FROM OUR CUSTOMERS.

I am delighted with the Daisy wheelbarrow.
Edesville, Md., July 10, 1888. B. F. BENSON.

Myself and My Neighbors is worth more than the price of GLEANINGS. DEWEY & VERNON.
Sipe Springs, Tex., Oct. 6, 1888.

Inclosed you will find $1.00, my renewal for GLEANINGS. I often find articles in GLEANINGS worth $5.00 to me. W. E. MORRISON.
Alvinston, Ont., Canada, Sept. 24, 1888.

GLEANINGS came all right. I am not going to say that I can not get along without it, but I find it not only interesting, but also instructive and well edited.
S. A. RUSSELL, M. D.
Newmarket, Can., Oct. 8, 1888.

GLEANINGS has become a household fixture. The A B C is our best counselor. The Home of the Honey-Bees is the place I should like to make a pilgrimage to. W. H. PARKER.
Newcastle, Ala.

Go on with your Christian teachings. They are inseparable from the honey-bee. He who doubts the existence of God, let him keep and study the honey-bee. It certainly is a specific against infidelity. R. BOSWORTH.
Winchester, Ind.

In "Myself and my Neighbors" of June you struck on a good vein. Let us spend less time in self-defense and more in being worthy of regard; and, instead of fighting opponents, learn to have more charity for them. R. WILKIN.
San Buenaventura, Cal.

I did not want to part company with GLEANINGS, so I asked you to continue it; but I have not been able to pay as promptly as I expected to. As soon as I can get the "chicken-buyer" to come and buy the old hen (and some more hens) I will send. I will pay for GLEANINGS, if it takes all summer.
Cambridge, Pa., Aug. 6, 1888. W. O. BEACH.

KIND WORDS.

The select tested queen which I received from you some time since is a perfect beauty, and I have some lovely queens from her, very large, bright, and prolific. I am preparing to have a display of bees and honey at the fair in San Antonio, Tex., of which I will write you more fully. My advertisement in GLEANINGS was a splendid investment. I had all the orders for queens I could fill.
San Marcos, Tex., Oct. 15, 1888. J. P. CALDWELL.

SOME KIND WORDS TO WHICH WE GLADLY GIVE PLACE.

Dear Brother Root:—When I find a good thing I like to tell others of it, that they may enjoy the same good thing themselves, especially those who live as I do, in a thinly settled portion of the country, where we have preaching only once a month; then when a stormy Sunday intervenes we have no meeting at all. In such a case, how nice it is to have a good religious paper to read, that will throw light on God's word, and help us to become better and more useful men and women. In this matter I am doing exactly what I would wish some other one to do for me. The *Sunday-School Times* I do most heartily commend—a 16-page weekly, 11 by 15 inches, published at 1031 Walnut St., Philadelphia. Price $2.00 per year; for new subscribers, $1.00 per year; mainly for the exposition of the international Sunday-school lessons, and it has other good reading. Another most excellent weekly, of 24 pages, 11 by 15 inches, is the *Christian Union*, published at *30 Lafayette Place, New York*, which, by its contents, gives me both pleasure and benefit. If any of your readers wish to add to their reading-matter they can't do better than to send a postal card and request a sample copy, which will be sent most cheerfully. I will not guarantee that their contents will every one be as excellently practical as "Our Homes" in GLEANINGS, but I feel safe in saying that but few who send for a sample copy of either will regret it.
A. H. VAN DOREN.
Mons, Va., Sept. 18, 1888.

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VENTILATION.

If you are in doubt as to whether your bee-cellar needs ventilation, or as to the kind or amount of ventilation needed, read the October BEE-KEEPERS' REVIEW. It gives the views and experience of the leading bee-keepers. The November number will discuss "Moisture" in bee-cellars. Correspondence upon this topic is solicited. All articles that are used will be paid for. Please read the October number before writing upon "Moisture." Price of the REVIEW, 50 cts. a year. Samples free. Back numbers can be furnished.

The REVIEW and "The Production of Comb Honey," for 65 cts. Address

W. Z. HUTCHINSON,
613 Wood St. **Flint, Mich.**

☞In responding to this advertisement mention GLEANINGS.

G. B. LEWIS & CO.

WE make the best Bee-Hives, the best Sections, the best Shipping-Crates, the best Frames, &c.

☞We sell them at the Lowest Prices.

Write for free Illustrated Catalogue.

G. B. LEWIS & CO.,
1tfdb WATERTOWN, WIS.

☞In responding to this advertisement mention GLEANINGS.

Costs less than 2 cents per week.

THE CANADIAN BEE JOURNAL.

THE FIRST DOLLAR WEEKLY IN THE WORLD.

THE D. A. JONES CO., PUBLISHERS, BEETON, ONTARIO, CAN.

D. A. Jones is its editor, and this fact is a guarantee of its worth. It is thoroughly practical and contains weekly excellent articles from leading bee-keepers in the United States and Canada. Fifty-two numbers make a volume of 1040 pages. American currency and stamps at par. Samples free.

☞In responding to this advertisement mention GLEANINGS.

NEARLY THIRTY TONS

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Write for *free* samples, and price list of bee supplies. We *guarantee every inch* of our foundation *equal to sample in every respect.* Every one who buys it is pleased with it.

CHAS. DADANT & SON,
3btfd **Hamilton, Hancock Co., Illinois.**

☞In responding to this advertisement mention GLEANINGS.

1888. 1888.

Pure Italian Bees and Queens

for sale in Full Colonies or Nuclei. Five L. frame nuclei a specialty. My queens and bees possess all the good qualities of the most desirable honey-bee.

Send for prices. **WM. LITTLE,**
6tfdb **Marissa, Ill.**

MUTH'S

HONEY-EXTRACTOR,

SQUARE GLASS HONEY-JARS,

TIN BUCKETS, BEE-HIVES,

HONEY-SECTIONS, &c., &c.

PERFECTION COLD-BLAST SMOKERS.

Apply to CHAS. F. MUTH & SON,
CINCINNATI, O.

P. S.—Send 10-cent stamp for "Practical Hints to Bee-Keepers" (*Mention Gleanings.*) 1tfdb

---

ON 30 DAYS' TRIAL.

EGGLESTON'S
TRUSS

THIS NEW

ELASTIC TRUSS

Has a Pad different from all others, is cup shape, with Self-adjusting Ball in center, adapts itself to all positions of the body, while the **ball** in the cup **presses back the intestines just as a person does with the finger.** With light pressure the Hernia is held securely day and night, and a radical cure certain. It is easy, durable and cheap. Sent by mail. Circulars free. **EGGLESTON TRUSS CO., Chicago, Ill.**

☞In responding to this advertisement mention G...

The publisher of THE AMERICAN GARDEN, of New York, wishes to announce that the price of that best of all horticultural magazines is to be raised on Jan. 1st to $2.00 a year, on account of further great improvements. Subscribe now at $1.00, and so save $1.00. Price in club with GLEANINGS, $1.85; all issues sent from date to end of 1889. Or send **10 cts.** *for* **two months.** *THE AMERICAN GARDEN covers the whole field of fruit, flower, and vegetable culture, greenhouse management, window-gardening, lawn-planting, etc.*

Address E. H. LIBBY, Publisher, 751 Broadway, New York.

HONEY COLUMN.

CITY MARKETS.

CINCINNATI.—*Honey.*—There has been no change since our last. Demand is slow for all kinds of honey. Best white comb honey brings 16c in the jobbing way, and extracted honey brings 5@8c on arrival. *Beeswax.*—There is a good demand, which brings 20@22c for good to choice yellow on arrival.
Nov. 12. CHAS. F. MUTH & SON,
Cincinnati, Ohio.

ST. LOUIS.—*Honey.*—Choice white-clover honey, comb, in 1-lb. sections, 12½@14c. Extracted, in cans, 7@9; small packages at outside. Bbls., 6@6½. Southern honey, dark comb, 10@11; extracted, in cans, 6@7. Bbls., 5@6. *Beeswax.*—Prime, 20@20½. Selected, 21@22. W. B. WESTCOTT & CO.,
Nov. 12. St. Louis, Mo.

COLUMBUS.—*Honey.*—Honey is not in such good demand, as most receipts are not strictly white. Receipts liberal. Fancy white, selling at 17@18c. Dark stock, 14@15. EARLE CLICKENGER,
Nov. 10. Columbus, O.

CHICAGO.—*Honey.*—No change from last quotations, with demand continuing to meet the receipts.
Nov. 12. R. A. BURNETT,
Chicago, Ill.

ST. LOUIS.—*Honey.*—Market almost bare of stock, especially strained and extracted. We quote, comb, 12@14c; strained, 5@6; cans, 7@8½. *Beeswax.*—Prime, 20c. D. G. TUTT GROCER CO.,
Nov. 13. St. Louis, Mo.

BOSTON.—*Honey.*—Receipts of honey very light, selling fairly well. Best white 1-lb. combs, 17@18; best 2-lb. combs, 16@17; extracted, 8@9.
Nov. 12. BLAKE & RIPLEY,
Boston, Mass.

FOR SALE.—1000 lbs. of good, light, extracted honey (taken from unfinished sections), in 60-lb. square cans, at 9c F. O. B. cars. Also one barrel, 360 lbs., amber, at 8c. Samples free.
EZRA BAER, Dixon, Lee Co., Ill.

FOR SALE.—One barrel, about 530 lbs., of fine honey, at 8c per lb. Who wants it? Speak quick.
A. L. KLAR, Pana, Christian Co., Ill.

SPECIAL NOTICES.

THE WORLD TYPE-WRITER ADVANCES TO $10.00 EACH ON JAN. 1, 1889.

JUST as we go to press we receive a circular letter from the manufacturers of the World type-writer, advancing the price to $10.00 each. You will notice, from the last page of our premium-list, accompanying this number (which was printed before we received this notice), that we offer a type-writer, including GLEANINGS one year, for $8.00. As we have laid in a supply we have determined to hold this offer good only till Jan. 1, 1889. After that date the price will be $10.00. We also hereby withdraw all special prices quoted by letter to those who were planning to supply their neighbors. Those who intend to supply themselves would do well to get their orders in at once, and not wait till the last week in December or they may be disappointed.

PRICE OF SECTIONS REDUCED.

We have decided on the following schedule of prices on one-piece sections for the season of 1889: Any width of the 4¼x4¼ one-piece sections, less than 200, ½ cent each; 250 for $1.00; 500 to 2000, $3.50 per 1000. For each additional 1000 up to 10,000, add $3.00 per 1000. For 10,000 or more, write us for prices. These prices are subject to the discount for early orders of 8 per cent mentioned on another page. We have the nicest lot of white basswood lumber we ever had, and are turning out beautiful sections. Every one at the Ohio Centennial, where we had our machines in operation, praised them. We would advise dealers to write for prices before placing contracts for next year's supply.

DADANT'S FOUNDATION FACTORY, WHOLESALE AND RETAIL. See advertisement in another column. 3btfd

FREE to all, A WHITE-GRAPE VINE. Send 10 cents for postage, etc.
POINT BREEZE GRAPERY, Reading, Pa.,

B. J. MILLER & CO.,
NAPPANEE, - ELKHART CO., - IND.,
MANUFACTURERS OF
BEE-HIVES AND SUPPLIES.
We give 10 per cent discount on bee-hives and sections in November and December. 22tfdb
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The Pan-Handle Bee-Keepers' Association will hold its next meeting in the K. of P. Hall, on Main St., between 11th and 12th Sts., Wheeling, W. Va., Nov. 21 and 22, 1888 All bee-keepers are cordially invited. W. L. KINSEY.
Blaine, O.

The twentieth annual convention of the New York State Bee-Keepers' Association will be held at the City Hall, in Syracuse, N. Y., Dec. 11, 12, and 13, 1888 A very interesting programme is being prepared, and questions of great importance will be discussed by many of the most prominent bee-keepers of America. A cordial invitation is extended to all interested in the advancement of our pursuit.
G. H. KNICKERBOCKER, Sec'y.

COLLEGE

GLEANINGS IN BEE CULTURE.

DEVOTED TO BEES, HONEY, & HOME INTERESTS.

Vol. XVI. NOV. 15, 1888. No. 22.

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REPLY TO DR. MILLER.

TIERING UP NOT ACCORDING TO NATURE; WARMTH FOR COMB-BUILDING.

ON page 755 of present volume of GLEANINGS, Dr. Miller asks Doolittle some questions in regard to bees working in sections over dummies, etc. In replying to these questions, I will do so in a sort of general way, in order that I may be the better understood by all of the readers of GLEANINGS, be they veterans in bee culture or novices. Dr. Miller says, "If a super of empty sections is put on a hive, don't the bees commence over the brood first?" Most assuredly they do, for that is bee nature, and all of our work should be in conformity with the natural habits of the bee if we would succeed. That the tiering-up process is not in accord with the natural habits of our bees, is one of the reasons why I have discarded that process; and because it is not natural is why more honey can be secured by some other way of working, and that, too, in a more nearly finished state, taking our seasons as they average. That the tiering-up process is not the one to give all finished sections at the end of the season, or the larger proportion of them so sealed, Dr. Miller well knows, or else he would not have given that article of his, written lately on grading honey for market, in which he dwells quite largely on what to do with sections which are from a few cells to wholly unsealed. Now, bees naturally have very little unsealed honey in the fall, where manipulation is unknown; and to show what I wish to get at, and apply it to what I believe is the only right plan of working for section honey, let us take a newly hived swarm, and watch them work according to nature, till they fill their hive. Upon getting settled in their newly found home, the first thing the bees do is to start a single comb in the center of the cluster of bees at the top of the hive; and when this comb is of the size of a 25-cent piece to that of a silver dollar, two other combs are started on either side of it, the size of the first one varying before the others are started, according to the size of the swarm, it being built much larger before the commencing of more combs, with the small swarm than with a large one. Now, the three combs grow till the middle one is of the size of a man's hand, and the others are of about one third that size when two more are started, one on either side of the first two side combs, rather than having the two on one side of these. In this way they keep on till the side of the hive is reached, providing the hive is not too large, or the cluster of bees too small to accomplish the filling of the hive. As the combs grow, brood is placed in the center of them, while the honey is placed in the top and around the sides of the brood, which (honey) is sealed as soon as evaporated enough for that purpose; and, no matter whether the swarm is large or small, you will find that they will keep the honey sealed well up to the comb-builders, so that, when the honey-flow stops, the larger part of what they have obtained is sealed.

Dr. M. well knows that, if the swarm were too small, the sides of the hive would never be reached; yet the central comb might be 8 or more inches long, and the honey all sealed on the inside of the outer combs, if a hive 18 inches square were used. Then why does he talk as he does of the sections being filled with warm air, the same as we talk of the room we live in being thus warm? The warmth is held inside of the cluster of bees, not inside of the hive; and the sooner we realize this fact, the sooner we shall be able to work our bees intelligently. A cluster of bees that is not bigger than a quart bowl can do good work at comb-building in the corner of a dry-goods box 3 feet square, yet there are those who would have us believe that, in order to do any thing, they would have to heat the whole inside of this box up to that degree of heat which is required for comb-building. Now, why I object to tiering up is that, when the cluster of bees gets expanded to its utmost, consistent with doing good by keeping the heat inside of the cluster of bees, which can just hold one tier of sections, along comes the bee-keeper, and raises these sections up, placing twice the room inside the cluster which the cluster can keep warm; consequently the cluster is all broken up, a new cluster has to be formed, which is, of course, so formed that it will protect the brood rather than the honey, so the bees commence building comb again, where they would, if they had been let alone, been sealing honey; and should the honey season now stop, or the weather turn so cool that the cluster of bees have to contract to a smaller compass so as to retain a heat inside the cluster sufficient to build comb, during the rest of the season, a lot of unfinished sections will be the result, and many must result from such manipulation in any event, if it is practiced to the end of the season; hence I say this tiering-up process is not according to the natural way that the bees work. Now take the plan I gave on page 634, and compare with the way the newly hived swarm works, and we have this: As soon as the colony gets strong enough to go into sections, one-third of the room over the brood-chamber is covered with sections, which are at once occupied, as the bees have only to complete the arch of the cluster, or crust bees, over the brood. When I think they need more room, I add at the side of this cluster more room, so that the bees crowd out into it the same as the cluster expands with the new swarm, building comb only as they have need of it, and that at the outside of the cluster as nature inclines them to do. Now, if I have given too much room, they are not inconvenienced in the least, for they do not need to occupy it unless they wish, nor are any combs which they have once worked upon thrown outside the cluster. When they are again crowded out to the outside sections, more empty room is added beyond this, and so they are kept going out naturally all the while as the swarm has been, as we have seen.

Now let me say right here, that, so long as there is room at the sides for the bees to work out, they will *never* be crowded for room, no matter whether the climate is warm or cold. As soon as many of the sections are sealed, which are those first worked in right above the brood, as the doctor supposes, they are taken out, as I gave on page 634, by the wide frame full; all of those the bees have commenced work in are drawn together over the brood again, and the empty ones placed on the outside, so the cluster is never broken up, but keeps working out all the while as nature has inclined them to do. Is this not all plain to you now, Dr. M.? If not, tell me wherein, and I will try to explain further.

On page 767 of GLEANINGS, I see that Mr. Whealy has a T super which he claims can be worked as above. If the T super can be so worked, I did not know it before, and will take back all I said regarding the non-working of it along this line.

G. M. DOOLITTLE.

Borodino, N. Y., Oct. 31, 1888.

You are doubtless right, friend D., or at least pretty nearly right. This matter of contracting so that the size of the hive exactly corresponds with the size of the colony, is an idea that has been very strongly urged for a good many years. I have, however, several times had reason to be skeptical in regard to it. In fact, I have seen bees pretty nearly in the condition that you express, "in the corner of a dry-goods box," not three feet square, however, but a hive so large I should have supposed it would have been disastrous so far as a large yield of honey was concerned—that is, theoretically; but the bees gave a tremendous yield in their big hive. In talking with Dr. Miller about it a short time ago, I asked him if he felt certain that a colony with the hive and surplus chamber, contracted according to the teachings of the books, was sure to do so very much better than one that was not contracted at all. He said a good many results had made him feel a good deal of doubt as to whether this careful contracting amounted to very much after all. I confess I am somewhat undecided about the matter, and I should be glad of more facts.

LATE QUEENS.

ARE YOUNG QUEENS THAT REFUSE TO LAY LATE IN THE FALL, NECESSARILY UNFERTILE?

I HAVE just had my attention called to a matter which interests me from a scientific point of view: One of the most prominent queen-breeders in the Northern States writes me that his queens which have come forth from the queen-cells on and after September 15th are none of them laying, although he has practiced feeding them. Drones are abundant, and have been flying freely every two or three days, and often for several consecutive days together. Some of the queens have flown out that were more than ten days old. He adds, further, that some imported queens which have just arrived he has failed to make lay, even though he has fed the colonies.

This breeder is of the opinion that these queens are impregnated, and will lay all right if kept till another spring. One of the queens was sent me for microscopic examination, that I might confirm or disprove the breeder's opinion by a discovery of the facts.

The queen looked like a non-laying impregnated queen. I examined the contents of her spermatheca, and found that she had been impregnated. The contents swarmed with the threadlike sperm-cells (spermatozoa), which positively attests that she had successfully mated (see last edition of Bee-Keepers' Guide, p. 102, where the sperm-cells are illustrated, and the process of fecundation fully described). Now, it seems well established that, while laying, the queen is fed chyle, or digested food, by the workers. Is it not probable that, in this case, the workers, realizing that the time for egg-laying for this season is past, refuse to yield of their digested aliment, and so the queen, of course, can not lay? I believe the explanation lies just in this fact: The workers refuse to feed the queen the proper food, and her eggs are, as a consequence, not developed. Of course, it is just possible that living so long—months—before egg-laying, she may never be a very fertile queen, possibly be wholly sterile; but I should not expect this. It is a frequently observed fact, that, when a queen once stops laying in the fall, at the close of the honey-harvest, feeding ofttimes wholly fails to start egg-laying again. It seems to me quite probable that the cause is the same as before. The worker-bees refuse to furnish food of the requisite quality.

Have not some of our extensive queen-breeders like Hutchinson, Alley, Root, etc., observed on this matter of queens before? If so, have they found such queens any less valuable the next year? I hope our friend who has just sent me the queen for dissection will keep all the other queens, note results carefully next spring, and inform us of the facts. I think the matter an interesting one, and very possibly it has practical significance as well.

FALL PLANTS.

Mr. John E. Heard, of Pikesville, Tennessee, sends me five plants from Cumberland Mountain, all of which, to use his words, are rich honey-plants. One is an aster, one a goldenrod; the third the heart's-ease, which it seems is not only a well-known honey-plant in Tennessee as well as in Iowa and Illinois, but is also known as heart's-ease. Surely *Polygonum Pennsylvanicum* is so widely known as heart's-ease that our botanists must be informed of the fact, and also give it this name. Number 4 is beggar-ticks, or bidens. Mr. Heard also knows this as Spanish needles. The long seeds have barbed or rough awns, hence the name, bidens, two-toothed. The seeds are forked, and look much like a boot-jack. In some species the seeds are very long and slim, and have four teeth, or awns, instead of two. These barbed awns, or teeth, make the seeds stick to the hair or wool of animals, or to our clothing. This is nature's provision to scatter these seeds. No. 5 Mr. Heard calls beggar-lice. The seed is flat, green, and is sure to stick to our clothes if we go among the plants. I have often had hundreds of these flat seeds sticking to my clothes after a short walk on low ground. Mr. Heard says he knows this plant as beggar-lice. Our botanists call a plant of the borage family (*Echinospermum Morisona*) beggar-lice. The plant Mr. Heard sends is a legumine, and a good honey-plant in Michigan as well as in Tennessee. There are many species in the United States. Our botanists know them as tick trefoil. They belong to the genus *Desmodium*. A. J. COOK.

Agricultural College.

The paragraph below seems to have some reference to what friend Cook has been writing about.

LATE-HATCHED QUEENS.

In connection with Prof. Cook's report on late-hatched queens I sent him, please add G. M. Doolittle's report on the same class of queens; viz.: "My experience is, that four out of five such queens prove to be good layers the next season, and I would keep over what I could of them." It is remarkable that only about one queen in ten hatched after Sept. 16th could be induced to lay by regular feeding. Drones are yet abundant in my apiary, and have been flying almost every day.

Oxford, Pa., Oct. 31, 1888. S. W. MORRISON.

In our own experience, we have a good many times had late-hatched queens behave exactly in the way indicated. But as other queens which we *knew* were fertile *also* refused to lay, under the same circumstances, I felt pretty well satisfied they would lay all right in the spring, and we have several times wintered them over, and the greater part of them have always commenced laying in the spring, and proved to be just as good as any. I think this has been already recorded in our earlier volumes.

CAGING QUEENS DURING SWARMING TIME, ETC.

MRS. AXTELL GIVES US SOME ITEMS FROM PERSONAL EXPERIENCE.

ONE man advises us to put a queen-cage in the pocket, with the queen in it, until the swarm is brought back. This I should not do, as it is apt to scent the queen, and she may be killed by the bees. I would lay the caged queen in front of the hive, and finish up the work with the hive as quickly as possible, and close up and go away. The bees are a great deal more apt to come back to their home if the queen is left on the alighting-board, and no person stands in front. I would not even fasten up the entrance of the hive, nor set a keg in front for returning bees until the swarm starts to come back pretty lively. Then I would slip around the side of the hive, close the entrance with grass, and set a keg over the queen, with one side raised a little. In a large apiary it is important to have the bees come back quickly and not cluster before other swarms issue.

An air-tight keg, or one nearly so, is hardly safe to use. At one time we lost a tight keg half full of bees. Several swarms had issued so fast that, in the hurry to care for them, our helper set the keg down flat on the ground. It happened to set so level that none of the bees could escape. An examination showed that the bees were nearly all dead.

I would have the queen-cages kept in the top of a hive of bees in swarming time, so that they may become bee-scented, and not left piled together in a box, open to the varying conditions of the weather until they become moldy. We did this one season, and wondered why we lost so many queens. After being returned to the bees, I would also have a few queen-cages close up in front of a few hives at the remote corners of a large apiary. If swarms issue in rapid succession, keep one or two cages in the pocket. I would never attempt to let a queen run into a hive with a swarm, for very often she will run anywhere else than into the hive. The bees will often take wing and swarm again. It is more difficult to find the queen the second time, because she and the bees will sometimes run under the hive, where it is quite a task to smoke them out. Sometimes we open the hive and release the queen upon a comb of brood, if we are quite sure the bees will return before they get mixed up with other bees. We think the safest way is to release her after the bees have returned, by putting a chunk of honey pressed over the cage's mouth, and laid in the hive, and let the bees liberate her. Care should be taken to perforate the comb so the bees will remove the comb rather than seal her in. A record must be kept, that such a queen was caged, and that the cage should be removed next day. If honey is coming in slowly, or bees are disposed to rob, or bees to get mixed with other swarms, I would always release her in some such way, rather than let her run in with bees, as it saves time and money in the end. MRS. L. C. AXTELL.

Roseville, Ill., Sept. 19, 1888.

Mrs. A., you have made a good point there where you speak of the importance of having queen-cages where they can be easily caught hold of when several swarms happen to issue all together; and I believe you are right, too, in giving a caution in regard to placing them where they may contract a bad scent. We have had trouble several times by leaving queen-cages where the ants could get at them. I believe the very best way would be to put them in the top of the hive where the bees can keep guard over them. You might, however, get some stings if you attempted to pick them up too hastily when swarms are out. If a new swarm is put into almost any sort of a new hive or other receptacle, and the bees are shut in with little or no ventilation, they are very likely to smother in hot weather.

MOVING TO FIELDS OF BUCKWHEAT.

NEARLY 350 LBS. OF BUCKWHEAT HONEY SECURED FROM 10 COLONIES IN 5 DAYS.

OUR season here has been very poor; in fact, the poorest ever known. I began the season with 71 colonies, and our crop is 50 lbs. of comb honey and 700 of extracted. This is what I have left after feeding. Comb honey is selling at 25 cents. No. 1 extracted, 15 cents. Buckwheat, 12½ cents. I fed back 600 lbs. It is all beautifully sealed, and the bees, I think, are in fine condition, part packed in chaff and part with leaves. I prefer leaves.

BUCKWHEAT.

In Oct. 15th GLEANINGS I see a short editorial on buckwheat. After July 20 I knew our fall flow would not amount to any thing. I visited the Chautauqua at Niagara, I think about the middle of August. Coming home I took the river road (which is along the Niagara River bank from Niagara to Queenston) home. When about half way I noticed a small piece of buckwheat; one-fourth of a mile further I saw another piece, about four acres, as white as snow. Being acquainted with the first man I met, I asked him if I could find a place to put some hives. "Yes," said he; "and Mr. B., a quarter-mile further on, has 35 acres more."

I drove on to Mr. B.'s, and asked him if he would give me the privilege of bringing down 10 or 20 colonies. After asking me several questions about bees troubling peaches and other fruit, he gave me the privilege of bringing as many as I wished. I drove home. This was Friday evening, and I began making preparations for moving 10. On Monday morning early we started with them, having 6 miles to travel. We arrived about 8 o'clock; and at 9, when we left them, they were bringing in pollen. On the following Friday I drove down to see how they were succeeding. I never was more astonished in my life, for 9 of them had 8 frames well filled above, while the 10th, being a swarm, had its brood-combs all filled sufficient for winter. I returned home, and that evening we packed up 10 more; and at daylight next morning we were off. After setting them down, we took 4 combs out of the first and put them into the second 10, thus leaving all with four full and four empty combs. On Friday, 12 days after, we took our tent, extractor, honey-can, knife, pans, etc., to extract. We extracted 350 lbs. from 19 colonies. This was nearly all gathered by the first 10 in the first five days. A week after we extracted the above we went down again, expecting another good extracting. I never was more disappointed than to find they had not gathered any. When we were there the week before, the field was white. I should have been there 2 weeks sooner. I also moved 30 to Niagara Falls, 4 miles south of my place, to 20 acres. It was dusk when I visited the fields. They looked white and beautiful. I went home and packed up 20 and brought them up. When I was going home I met the owner (that is, after I had taken the bees up), and he stopped me and said I would not get any honey from them, as the grain was forming, and the blossom now would not produce any honey. I told him I had no experience as to which blossoms produced the honey. He said he was sorry I had not taken the bees to his place. Two weeks after, I brought them home. They had not gathered a pound; in fact, some were 2½ lbs. lighter, so you see he was right in what he said regarding the blossoms. I had no trouble in finding a place to set them. Everybody seemed tickled to have me bring them, except one man north of me 3 miles, who was afraid of his children being stung.

I will give you my mode of packing for moving bees to different localities, at another time.

This was a good season for buckwheat, being cool and damp. Three years ago I gave my neighbors all the grain they would sow, but it did not pay, as the season was very hot, and the bees did not gather any honey after 10 o'clock. WILL ELLIS.

St. Davids, Ont., Can., Nov. 5, 1888.

You have given us a valuable report, friend E. Thirty-five acres of buckwheat, as it was, kept ten colonies booming. It is too bad we could not have known what the 35 acres would have done if the bees had been moved two weeks earlier. Never mind; perhaps you will have a chance to try again.

GOLDENRODS AND ASTERS.

THEIR VALUE TO BEE-KEEPERS.

FRIEND ROOT:—I was much pleased and interested at Columbus to learn of the knowledge and evident interest of so many bee-keepers, in our bee-plants, as evinced in the fact of their bringing honey-plants, and the desire expressed to know the correct names. A large number of bee-keepers showed me plants, and wished to know if they were correct in their opinion. I found nearly every one knew the correct names of our common plants. It was a matter of real encouragement and pleasure to me. You and I know full well that such habit of close observation not only makes better bee-keepers but happier and hence better men. Show me a genuinely happy man—what if we should think of Dr. Mason right here? we have a right to think of our president—and I will show you a good man. Did you think, friend Root, of what a nice lot of men (of course the ladies were nice) we had at Columbus? I did not hear a profane or vulgar word. There was no evidence of smoking, and so, of course, not of drinking. Get people interested in bees and flowers, and the vices have far less show. I am glad then to do any thing I can to aid our bee-keepers in this wise and very laudable desire to know more of flowers and whatever pertains to our industry.

Mr. S. S. Saumering writes me as follows: "Inclosed please find two specimens of plants which I should like you to name for me through GLEANINGS. The one with yellow flowers has ceased to bloom; the other is now in full bloom, and continues in bloom for about three weeks. Both are great favorites with the bees. They grow about two feet high. The yellow one has a single stem, the other a branching one. I find them growing side by side by the acre in old pasture-fields."

Strange to say, these are the plants most inquired about at Columbus. The white, many-flowered plant is one of the asters. These asters are very beautiful, and very excellent honey-plants. From letters which I have received, these plants are wide-spread throughout the United States. The yellow flowers are goldenrod. These are also very beautiful, not only in color, but in grace of form. I think both A B C and Bee-Keepers' Guide have fine illustrations of both these plants.

SPIDER, AND BEETLE.

The beetle which Mr. Hailes sends is one of the family *Buprestidæ*, or flat-bodied borers. It belongs to the genus *Chrysobothris*. By looking at my maple-sugar book, page 15, we see a good figure of *C. femorata*, which is a very destructive borer in the apple and maple trees. This one from Texas is the same form, but a little larger. It is dark gray in color, with four brassy spots on each wing-cover. The three anterior spots on each side are in a line, while the two posterior spots are nearer together than either pair of the other six. This insect bores, as a grub or larva, in some of the Texas trees. The grub appears to have a big head. This insect is also new to my collection, and I am very much pleased to get it.

The red specimen was ground to powder. I can only say it is a species of spider. It is easy to distinguish a spider from an insect. The adult, or imago insects, all have six legs, while all of the spider group—the true spiders, the scorpions (these include our grandfather graybeards, or harvest-men, and all have segmented abdomens), and the mites—have invariably, if we exclude the phytoplus mites, eight legs. Insects have antennæ and compound eyes; spiders have neither. Insects have three marked divisions of the body—head, thorax, and abdomen, while the true spiders and scorpions have only two divisions—head-thorax and abdomen, and the mites are little more than a sack with legs and mouth parts attached.

Mr. J. A. Golden, Reinersville, Ohio, sends a large horn-tail, *Tremex columba*. This is also a maple borer. See sugar-book, page 16. It is a large cylindrical insect, black, with yellow rings on the base of the abdomen, and a strong horn-like ovipositor, hence the name, horn-tail. This tremex is more than 1½ inches long, and the ovipositor reaches back nearly one-half inch. It can not sting, so no one need fear to handle it. It also works on the elm, cottonwood, and pear. By bending her body, this insect can thrust her ovipositor into solid wood for more than half an inch, and so she places the eggs out of harm's way.

THE GREAT WHEEL BUG.

Mr. Paul Peins, Martinsburg, W. Va., sends me a large fine wheel bug — *Priondus cristatus*, Linne, which, owing to careful packing, comes to me alive and hungry. He asks for a report in GLEANINGS. As this is a typical species of the predaceous bugs, I am glad to give a full description of this one of our most active insect-friends.

As I have before stated, the bugs—all of the order *Hemiptera*—have their mouth parts modified into a strong sucking beak, which in this species can be used with great effect. The order *Hemiptera*—bugs—is divided into two sub-orders—*Homoptera*, which includes plant and bark lice, cicada, and some others less common and not so well known; and *Heteroptera*, which includes the true bugs—bedbugs and parasitic lice. The name *Hemiptera*—half-wing—comes from the fact that the bases of the wings are thickened so that the insect appears to have half-wings. The word *Heteropter* means unlike wings, which refers to the same peculiarity.

This bug is called wheel bug in allusion to the curious half cog-wheel which forms the summit of the thorax. There are ten of these peculiar cog-like spines, or tubercles. The general color of this wheel bug is a dark gray. The strong three-jointed beak is brown, tipped with black, while the long slim four-jointed antennæ are also brown, with a yellowish outer half. The thin portion of the upper wings is bronze-colored. As bee-keepers know, insects breathe through spiracles, or breathing-mouths, situated on the sides of the body or abdomen and thorax. The spiracles show very plainly on the sides of this bug.

It has a long slim head. All such are predaceous, and so valuable aids in keeping our insect-foes at bay. The rounded prominent eyes are seen on the side of the head. This bug not only uses its powerful beak in overcoming and sucking the blood from its victims, but also to defend itself. It can not only thrust this beak into our flesh, but it secretes an acid poison which renders its bite quite as painful as the sting of a bee or wasp. Like most other bugs it secretes a very odorous—disagreeably so—liquid, which undoubtedly serves to protect it from hungry birds. No bird would think to eat a second one of these stinking bugs. I don't think this passing of these bugs by is instinct on the part of the birds; it is just good bird sense—action resulting from knowledge gained by experience.

This, like all other bugs, passes through incomplete transformations. Unlike our bees, whose transformations are complete, the newly hatched bug looks much like the mature bug, except it is smaller, and has no wings. The habit of larva, pupa, and imago, or adult, are the same, so that a single bug from babyhood to old age will make way with a prodigious number of plant lice, caterpillars, etc. I have often been amused to see how speedily this large wheel bug will devour even large grubs and caterpillars, which I have given it while keeping it confined in a box. This very one celebrated its arrival in Michigan by devouring half a dozen house-flies which I caught and put in a bottle with its bugship.

While these long-headed bugs are all our friends, as much can not be said of the other species whose heads are sunk into the thorax to the eyes. Some of those are also predaceous, while others, like the squash bug, chinch bug, and tarnished-plant bug, do immense damage.

A WILD BEE.

The wild bee in its tough cell, received from A. Hund, Casco, Mich., came headless and legless, so I can not say what it is. It looks like one of the genus *nomada*, one of the cuckoo bees. The mother bee in this case steals into the nest of some other bee, often andrena, the small black bees so common about sap in spring, and sometimes seen stealing honey from the honey-bee, and lays its eggs on the pollen gathered by the andrena. Thus the mother andrena feeds its own young and that of the nomada. I am very sorry this bee is so broken. I should have valued it if it had been intact.

Will all please remember that frail pasteboard boxes are not sufficiently strong to send in the mail? A. J. COOK.

Agricultural College, Mich.

THE IGNOTUM TOMATO.

PROF. TAFT, OF THE MICHIGAN AGRICULTURAL COLLEGE, GIVES THEIR REPORT ON IT FOR 1888.

MR. ROOT:—I am glad to hear so favorable a report from you. From our own experience, and the reports of others who have tried it, I am inclined to think that it deserves a front rank among the tomatoes. With us, as compared with Mikado, it is larger, smoother, more solid, less subject to rot, more productive, and is more desirable, both as an early and as a late variety.

We had several hundred plants growing on a dry sandy knoll; and although it was a dry year with us, the plants gave a very heavy crop, and continued ripening until the frost destroyed the plants about the first of October.

The Ignotum seems to be a sport from *Eiformige* (eye-shaped) *Dauer*, and does not seem quite fixed as yet, some of the plants reverting to the original. On this account I had not intended to disseminate it next year, preferring to wait until the plants would come true. I have saved seeds from carefully selected fruits (both early and late), and hope to establish it in another year.

So far as our records show, seeds have been sent to only about a dozen, none of whom are seedsmen. Next spring I shall send seeds to about 20 of our sub-stations, but shall not place any of them on the market. If you desire to use the seed you have saved, in the manner indicated, I shall have no objection, provided you impress upon the purchaser the fact that they are merely distributed for the purpose of being tested. L. R. TAFT.

Agricultural College, Mich.

In regard to the type not being quite fixed as yet, with the exception of what I wrote on page 856, last issue, it has given the most uniform results of any tomato we ever grew. I cheerfully assent to the request made above; and in view of this we will send to every one of our subscribers, who renews for 1889, a small packet of the seed, with the understanding that they accept the seed as only a new variety being tested. See page 910 of premium list. Remember, the seed is not for sale. It is simply *given away* to those who subscribe for GLEANINGS.

TO THE BLACK SAGE.

THE HONEY-PLANT OF CALIFORNIA.

O dark-green shrub! I love thee well!
Thy worth no human tongue can tell;
There may be flowers of sweet perfume
That stand unrivaled in their bloom,
And they may look and be more fair,
And scent, like thee, the summer air;
But thou alone, in all creation's plan,
Wast made the sweetest comforter of man.
On stony hill or mountain-side,
Or in the deep sequestered glen,
Or on some rocky ridge to ride,
Afar from haunts of men,
This is thy home. But thou art seen,
Thy bosom scenting all the air,
Amidst the jungle's deepest green,
The proudest form that blossoms there.
I see thee, up on the mountain crag,
Where thou alone, and the daring stag,
May look on the blooming vale below,
Which thou hast covered with purple snow.
But, dearer still, a thousand fold,
Above the snow is a *storm* of *gold;*
And the song comes up, both deep and clear,
Oh! fade not away for another year!
I rest me *here*, on this jutting stone
On the mountain-side, but not alone.
Millions of friends are round me here,
Armed cap-a-pie with sword or spear.
They soar aloft to the mountain high,
To hear, alone, your latest sigh,
And drink, as you look on the fading sky,
With the last fond look of a dying eye—
The sweetest tear that you ever shed,
And the latest one, ere life has fled.
Full many a sailor yet shall keep
His silent watch along the deep,
But many a gallant fleet shall brave
The wild Atlantic's stormy wave,
Or sail along this peaceful sea
All laden down with sweets from thee.
They bear thy name to Northern land,
Or south to "India's golden strand."
But, no! thy fairer sister at thy side,
Decked in purple, like a royal bride,
So tall and slender, and so wondrous fair,
And proud, she bows with hauteur to the air,
Wher'er the starry banner is unfurled
On distant sea or land, throughout the world.
Thy fairer sister's fame has gone before,
A robber* on the sea and on the shore.
Were truth believed, and common justice done,
This fame were thine; and it is fairly won.
Nine-tenths of all the sweets that sweep the sea
Are tears, all tears, that have been shed by thee;
And yet thine eyes are always bright and clear,
And look as though you never wept a tear.
But they were tears of happiness, and man
Has got them by the box and by the can.

J. P. ISRAEL.

Olivenhain, San Diego Co., Cal.

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* *Note.*—The black sage gives fully three-fourths of our crop of white honey, before the white sage comes into bloom. It is *all* branded "White-sage honey." The black sage produces the whitest and most beautiful honey. J. P. I.

THE SASSAFRAS CATERPILLAR.

ALSO SOMETHING ABOUT SWALLOW-TAILED BUTTERFLIES.

I HAVE just received from David Strang, Lincoln, Tennessee, four larvæ, or caterpillars, of one of the most common butterflies of the United States—*Papilio troilus*. He asks if this is the same that feeds on parsnips, fennel, etc. He says he reads with great interest the articles on insects, and would be grateful if I would write of this one for GLEANINGS.

I am glad to write up this species, as I am sure I can make it speak out a good lesson, that I hope may lead some parent to encourage the children to observe and study these gems of the animal world.

The sassafras butterfly is one of the swallow-tails. These all belong to the genus *Papilio*, and all have long tail-like prolongations to the posterior or secondary wings. This one is large, though not quite as large as the turnus, or yellow swallow-tail, lately described in GLEANINGS. It is one of the blackest —or, rather, it is blue-black—or all of these. It is not the one that feeds on parsnips, carrots, etc. That one is about the same size in the butterfly state, but has more yellow. It is *Papilio asterias*. The troilus butterfly comes in June, and lays its eggs on the sassafras. The caterpillars are gray at first. They then cast their skin, or molt, when they are green. After the last molt, or casting the skin, when they become one and one-half inches long, they are brown. Now, how interesting is all this, and how it will delight any child to watch these changes! It is as if a negro should go to bed some night and wake up the next morning a white man, and, two weeks later, should in like way change to a copper color, and later to a yellow hue; though these changes in molting of this and other caterpillars are even more marked than would be the changes from one human race to another. The lesson I have to urge is, that parents encourage their children to observe and study all these wonderful processes and evolutions; they will be far happier, and, I think, far more useful. My little boy knows all our birds and many of our insects. It is his delight to study them. He will never worry his father and mother by lounging in streets, or stopping out late nights. He has found out something more pleasurable, and this fun builds up instead of tearing down character.

These caterpillars, like all those of the swallow-tailed butterflies, are somewhat conical, being larger at the head end. The green larvæ, the ones usually seen, have yellow sides, and are pinkish brown beneath; on the first ring back of the head is a yellowish-white line; on the third ring, large dark velvety eye-like spots, ringed with yellow; on the fourth ring are similar yellow spots with a narrow margin of black. Back of these are four rows of blue spots ringed with black. There are four such spots on each of the 6th, 7th, 8th, 9th, and 10th segments. There are only two such spots on the 11th segment. The spiracles are situated on the brownish area beneath, and are also tinged with blue. These insects pupate on some vertical surface. Any child would watch the pupation with delight. Thus the insects pass the winter as pupæ.

The butterfly which comes in June and July is black, with broad bluish markings. Though not quite so handsome as either turnus or asterias, yet this troilus is a beautiful butterfly.

We have two other papilios in Michigan—*P. ajax*, which works on the buckeye, and *P. chresphontes* which feeds on the prickly ash. All are strikingly beautiful, and add much to any collection of insects. A. J. COOK.

Agricultural College, Mich.

THE POETRY OF BEE-KEEPING.

DEACON SMITH'S VIEWS, REPORTED BY EUGENE SECOR.

DEACON S. is a good deal of a wag. He loves a joke about as well as some of the younger sinners. But he is a philosopher withal. His grammar is not always faultless, but he has mastered some of the practical problems in the school of experience, and reasoned out a few of the homely truths by the logic of events. He is a man of hard knocks and hard sense. Deacon S. is interested in bee-keeping. He has been borrowing my bee-journals for a year, "because," said he, "I make it a rule never to buy any thing I can borrow." Another favorite saying of his is, "What's the use of having friends if you don't use them?"

Deacon S. brought home some of my journals the other evening. By the way, that is a violation of one of his rules, "for," says he, "it's trouble enough to go after a thing without having to carry it home." On this occasion, however, he excused that breach of neighborly courtesy by saying, with a twinkle in his eye, "I like those apples of yours pretty well; and as the evenings are getting long, and the time before election short, I just thought I'd hook on to Mirandy, and come over here and talk politics and bees.

"And now while I think about it I want to air my mind on the poetry of bee-keeping. If some of these fellers that's writin' poetry on the bees would come and help me take off my honey, and get the bees ready for winter in the latter end of September, I reckon they'd sing a different tune before they they got through a hundred stands.

"I'd like to see some sweet bee-keepin' poet go through a hybrid swarm the second day after a hard frost, when the buckwheat had been killed as dead as a mack'rel, and the poetical goldenrod had ceased to give down. If he didn't hibernate in the bosom of his family in about ten short minutes, then I'd have some faith in this poetry business.

"My opinion is, that these fellows that write on the sunshiny side of bee-keepin' don't know much about it any way. These rosy-posy articles put me in mind of a patent-medicine adver*tise*ment that will cure every ailment from a bald head to a cramp in the big toe.

"It's good for the rich, likewise the poor;
  It's good for the maid without lover;
It's good for the lawyer, or clerk in a store;
  In fact, good for all the world over.

"You fellers that have just a few stands, and are so delighted with the healthfulness and poetry of bee-keepin' (while you hold down a chair in some law office and let your children do the hard work) put me in mind of a hen with one chicken. She feels just as important as if she was a double-decked patent incubator, and makes more noise than if she scratched for a hundred. If we could understand her cackle, I expect she is singing about the flowery delights of the chicken-business. I believe you just want to see your names in print, that's all. You don't know any more about the business (nor half so much) as we modest fellows that hide our camels under a bushel.

"Now, I never stumbled on to two lines of poetry in all my experience in a bee-yard; and the nearest to the genuine article that I ever read of was where Samson extracted honey out of the carcass of a dead lion, on the way to see his girl. That's what I call sweet *hum* poetry. But we fellers that have to rustle for a living, extract mighty little poetry out of the back-aches and the arm-aches and the sting-aches of the honey-business. And then, if, in the general round-up in the fall, the surplus in the treasury isn't large enough to get up a dispute over as to whether you shall take it to buy Mirandy a new calico dress, or send it to the heathen, I don't believe the business is healthy.

"Now, I never tried to write a line of poetry since I used to write valentines to Mirandy, way back in the '40's; but if I should try to write verses about the bees, with my present feelin's, it would be something like this:

"'Tis bees' delight to buzz and bite,
They're always aching for a fight,
And always sure to win it.
They'll knock the music out of a poet,
They'll make a fellow with *rheumatiz* go it—
Though as stiff as a poker he'll *shin* it.

"When these darlin' little creatures are so hungry, they follow him around the yard to smell his breath." EUGENE SECOR.

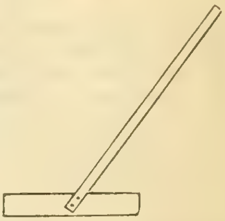
Forest City, Iowa, Oct. 13, 1888.

But, friend S., what makes you stop so sudden? It almost brings your readers up short. Did the supply of apples give out all at once, or did Mirandy declare she was ready to go home, and would not stay any longer? And, again, what did *you* have to say in regard to the subject? You might have reminded the deacon that bee-stings are good for the "rheumatiz," even if they do sometimes make one "go it" in spite of rheumatism.

CUCUMBER AS A HONEY-PLANT.

DR. MILLER TELLS US SOMETHING ABOUT PICKLE-FACTORIES AS WELL AS BEES AND HONEY.

At Marengo is located a pickle-factory. The stockholders, through their management, contracted in the spring of 1888 to take the cucumbers from some 225 acres, and, besides what they contracted for, took all that were raised, making the total average in cucumbers more than 250 acres. For small cucumbers, 40 cents per bushel was paid, and a limited quantity of large ones were taken at 15 cents per bushel. The total product was something more than 30,000 bushels. Those who raised the pickles were mostly farmers, using good farming land without any special preparation. The various patches contained one, two, and in some cases five or more acres. The fields were limited in size by the difficulty of harvesting the crop, for picking cucumbers by the acre is no child's play, but a tedious, back-breaking job. The man with a large family could raise more cucumbers than the one with few children; for men, women, and children joined in the service. During the picking season it was a common thing to see the whole family out in the cucumber-patch, even down to the little tot who could do little more than to trample down the vines. To save unnecessary stooping as much as possible, a very simple implement is used.



It is merely a bit of thin board, a foot or more long, on which is nailed diagonally a straight stick for a handle. The picker walks along the row, pushing the leaves aside with this tool, which enables him to see where the cucumbers are, and no stooping need be done except when a cucumber is seen. The cucumbers are generally put in bags to take to the factory, and wagons loaded with the bags may be seen approaching the factory from all directions. Sometimes, especially on Saturday night, the line of teams awaiting their turns is so long that it is very late in the night before the last team has a chance to unload.

Some of the producers brought their cucumbers as much as six miles or more; and as neither of my apiaries was five miles from the pickle-factory, all my bees had a chance to work on the cucumber-blossoms. It is not an easy thing for me to say just how much they obtained from that source. On the one hand, the yield is very far below what I had supposed; for, from watching the time a bee spent on a single blossom, I had supposed an acre of blossoms would supply quite a flood of nectar; whereas at no time was there any rapid storing, the best, perhaps, being hardly more than a pound per day per colony. On the other hand, it was a matter of no little consequence to me to have my bees heavily supplied for winter with honey that I think was mainly from cucumbers, thus saving a repetition of the experience of last year, when I had to feed 2800 pounds of granulated sugar to winter my bees. Last year, cucumbers, as well as every thing else, failed to yield nectar, on account of the terrible drouth. Instead of having to feed this year, I extracted 400 pounds of honey to relieve hives that were crowded. I do not know that I could furnish a single ounce of honey that I could certify as clear cucumber, for goldenrod, asters, and a very little buckwheat were at the disposal of the bees, and I can not tell what proportion of this may be mixed with the cucumber. As nearly as I can tell, cucumber honey is of fair consistency, not much darker than clover, and of flavor not very pronounced. Most of those who have sampled it think the flavor very fine, some preferring it to clover, while those who, I think, are better judges, place it much below clover or linden.

Since writing the last sentence I have had my supper, and on the table was a sample of the honey of which I have been speaking. It was critically tasted and discussed by the family, and admitted by all to be fine; but whether the flavor was entirely, or indeed largely, due to cucumber, I am not prepared to say. It seemed to me very much like a combination of flavors. Emma, who is no great lover of honey, pronounces the flavor similar to buckwheat; but as it is very little lighter in color than clover, there certainly can be no great amount of buckwheat in it. It is possible that it is mainly cucumber with so mild a flavor that a very little honey from other sources overpowers the cucumber flavor. I never had any honey to granulate so rapidly. It was quite thick when extracted, and became cloudy from granulation within a very few days after being taken from the combs.

I doubt if it would pay to move bees any great distance, to take advantage of a cucumber crop, unless the bees should be otherwise absolutely idle; but to have the cucumbers brought to my bees in a year of failure, in sufficient quantity to prevent the necessity of feeding a single ounce for winter stores, I consider a matter for profound gratitude. Even in a year of plenty, the crop is of considerable consequence to me, for it comes after the harvest is over, and, as a general rule, the fall yield from other sources amounts to very little in my neighborhood. C. C. MILLER.

Marengo, Ill., Oct. 18, 1888.

There, friend Miller, you have given us something not only interesting but valuable. What an ingenious arrangement the tool you mention is, to save one's back! I have stooped over and pushed leaves away until it made my head ache, but I never thought I might have something to do it with. I presume very likely, as you say, while it will not pay us to make any great stir about acres of cucumbers, it may be well worth the while for bee-keepers near by to move their hives to the vicinity during an unfavorable season.

CHINESE CURIOSITIES AT QUIET NOOK.

ANOTHER LETTER FROM ANNA QUILLIN.

IN an article published in June 1st GLEANINGS, I told you of a letter I had received from China; and ever since that I have been intending to tell you something more in regard to that wonderful little letter.

I presume some of you will remember an article written by Mrs. Chaddock, which was published in GLEANINGS, Dec. 1, 1887, giving a little sketch of Anna Quillin and her collection of curiosities. Now, I do not know whether GLEANINGS makes a regular business of going to the uttermost parts of the earth or not; but I do know that that copy traveled over land and sea, and in February arrived in North China, and reached a missionary who is stationed there. In the latter part of April I received a letter from that missionary; and, though we were utter strangers, as the world counts strangers, yet we were *not* strangers, but friends in Christ Jesus our Lord. I think my friend will pardon me if I let the readers of GLEANINGS enjoy the contents of that letter with me, for a pleasure is always enhanced when shared with others.

Miss Anna Quillin:—I saw a note written by Mrs. Chaddock, for GLEANINGS, referring to your collection of curiosities. It occurred to me that a little something from China might add to your pleasure. I inclose a couple of New Year's calling-cards; a letter I received some days ago; a cash; a one-cent Chinese stamp, and a two-cent Japanese stamp. The story of your patience in suffering has preached the gospel unto the ends of the earth. May God add to your peace and joy, and never suffer your faith to be overcome.

O. W. W.

Tsunhua, North China, Feb. 24, 1888.

The New Year's cards are not stiff cards, but are strips of soft Chinese paper. One of them is 7¼ inches in length, and 3⅝ inches in width; the other is 6½ in length by 3¼ in width. On the back they are the color of unbleached muslin, and on the face a bright red (vermilion) color, and are decorated with some huge black characters in Chinese, which may represent the names of people, or may be a New Year's salutation, or may be any thing else in the Chinese language, for aught I know to the contrary.

The letter is on a single sheet of soft creamy-looking paper, ruled lengthwise with broad red lines, and almost the entire sheet is covered with pictures outlined with red, which are stamped in the paper. Here, near the top of the page, is a portion of a tree with one limb extending nearly across the sheet; under its spreading branches are quite a number of impossible-looking horses, prancing, dancing, and tossing their heads. A little further down the page is a rather steep road with some more queer-looking horses. Some of them are going up, some coming down, and some of them have packs strapped on their backs, while down here in the corner is another horse lying on its back, rolling and kicking. The message is in black ink, and goes on in regular lines, regardless of the pictures. But no one need ask me what that letter is about, for its secrets are safe—I will never divulge them.

The Chinese and Japanese do not write and print across the page as we do, but lengthwise; and instead of beginning at the upper left-hand corner, and reading across the page from left to right, they begin at the upper right-hand corner and read down the page—their lines running down the page, and their hieroglyphics placed between them like columns of figures.

The "cash" is a Chinese coin made of brass; is nearly an inch across, and is made with a hole in the center, which is exactly one-quarter of an inch square. One cash is equal to *one-tenth of an American cent;* so if you had one dollar in one-cash pieces you might find it very convenient to string them as you would beads. The Japanese have a similar coin, and they have some other coins of small value, with a square hole in the center.

How little we know what an influence for good or evil, even the least of us may have in the world! How strange and wonderful that I, an almost helpless invalid, lying here on my couch in Illinois, could have a particle of influence in China! Never before had I realized the force of the Scripture injunction: "Whatsoever ye do, do all to the glory of God." Then let each one of us ask for guidance and sustaining power in every trying hour.

Ipava, Ill. ANNA B. QUILLIN.

Friend Anna, perhaps I should make a little explanation as to why GLEANINGS gets away off into the uttermost corners of the earth as it does. The older readers know something of the secret of it; but I think they will excuse me if I tell the story again briefly. Shortly after my conversion, our young minister wanted me to talk in the young people's missionary meeting; and he assigned me, for a subject, the Sandwich Islands. I told him I did not know any thing about it, and I was afraid I did not care any thing about the Sandwich Islands. But he urged so strongly that I decided, out of respect to my pastor, to do what he asked, as well as I could, though I felt sure he had made a great blunder, and that the responsibility would rest on his shoulders. He laughingly declared that he would assume all the responsibility providing I would read a book he would lend me, about the Sandwich Islands, before the following Sabbath evening. I began to read the book as I would take a sort of punishment; but before Sunday I was full of enthusiasm, not only in regard to the Sandwich Islands, but missionary work the world over. This enthusiasm got into GLEANINGS, and, without thinking of what I was doing, I proposed to send our journal free to any missionary in any land who cared enough for it to read it. All at once it became apparent that, among the readers of GLEANINGS, there were quite a number who had friends in mission lands. Stranger still, the missionaries to whom it was sent as a surprise began to take a kindly interest in bees. So it has transpired that it was one of the most profitable investments I ever made, financially (letting my pastor guide me), for it has opened up traffic in our supplies in foreign lands that no other kind of advertising, perhaps, could have done. When I did it, however, I had no remote thought of getting back the bread, which I by a sudden impulse had commenced to cast upon the waters. So you see I can echo your concluding words—"How strange and wonderful!" and I do believe that, if we do *all* to the glory of God, we shall meet strange and wonderful verifications of his promises day by day, and especially "in every trying hour."

HONEY FROM THE MELISSA, OR BEE-BALM.

A GOOD REPORT FROM THE INTRODUCER OF IT.

YOU may expect in a few days, by express, a sample of "melissa" honey, which I think you will pronounce as good as any you ever tasted. The yield this season from about two acres was 1500 pounds, and without cultivation, the seeds being simply sown broadcast on as weedy land as I ever saw. It doesn't pay to plant for honey alone—oh, no! The plants were grown on land that is worth $100 per acre. I sold the honey for from 20 to 40 cts. a pound, at home. Perhaps the honey is a little darker than that produced from white clover, but the comb is as white as can be made from either basswood or clover. Your honest verdict is requested.

I take exception to your remarks in GLEANINGS, in reply to the complaint of Mr. Baldwin, with refcrence to the result of his advertisement of bee-balm seed. You say he sold the seeds for more than they are worth, or words to that effect. Who regulates the price of melissa seed—the introducer, who raises the seed by the bushel, or the person who has but a small quantity to sell? It is a well-known fact, that your humble servant introduced melissa, and I still sow a larger acreage and grow more seed than all the bee-keepers in the U. S. combined. I have sold hundreds of packages of seed at 50 cts. per ounce. It is a well-known fact, that there is no such thing as a uniform price for seeds or bulbs. There are reliable firms in Ohio, Illinois, Iowa, and elsewhere, of whom I can purchase good seeds much cheaper than of eastern firms. Melissa is not generally known as "bee-balm." This is the reason, perhaps, that Mr. B. did not have better success in selling his seed. If I remember correctly, Mr. Baldwin purchased his seed originally of me. A. C. TYRREL.

Madison, Neb., Nov. 1, 1888.

Many thanks, friend T., for your report, and also for the sample of honey. The honey is, as you say, rather dark, but this objection would not be very much, providing the flavor were equal to either clover or basswood. Had you not told us the source, I should have said at once that it was from Spanish needle; and if there is Spanish needle in your vicinity, I should be very much inclined to think that a large portion of the honey was from this source.—I can not agree with you in regard to your ideas about the price of seeds. Demand and supply regulate almost every thing, and I do not know how we can help it. More seed is offered us at a dollar a pound than we dare buy; and such being the case, I do not see how we can well expect to get more than 15 cts. per ounce, postage paid. We are well aware that you have sold a good deal of seed at 50 cts. an ounce; but judging from the facts given above, it does not seem to me to be wise for you to charge more than what others do; for if you do, you will surely "get left." Neither do I quite agree with you, that there is no uniform price for seeds, bulbs, etc. If such is the case, the bee-journals and agricultural papers are certainly not doing their duty. My experience is, that when somebody offers a thing for less than its market value, he is very quickly sold out. When undertaking to get more, he usually has his trouble for his pains, and his stock remains on his hands. The quickest way to settle on a definite price for melissa seed, is for those who have it to dispose of, to briefly advertise it, both by the ounce and pound.

HEART'S-EASE.

J. A. GREEN TELLS US MORE ABOUT IT.

FRIEND ROOT:—I see that there is still confusion, even in the minds of bee-keepers, as to what heart's-ease really is. I would send you photographs as requested, but a very hard frost only the night before GLEANINGS arrived made it impossible to secure a good specimen; and as there is no photographer within four miles, I will content myself for the present with sending specimen branches to yourself and Prof. Cook. Perhaps you can get a cut from them. There are two plants known here as heart's-ease, both varieties of polygonum. *Polygonum Persicaria*, also known as "lady's thumb" and black-heart, is the true heart's-ease. The name of black-heart, and probably that of heart's-ease, is derived from a heart-shaped or triangular dark spot which appears in the center of the leaf. It is not always present, and sometimes it may be found on the other variety, *Polygonum Pennsylvanicum*, which, otherwise, is usually without it. These varieties seem to run into one another, so that sometimes it is a little difficult to tell to which variety a particular specimen belongs. As a rule, though, they are quite distinct. *P. Persicaria* grows only from 12 to 18 inches high. Its minute flowers are densely crowded on a short spike, and are usually of a deep rose color, though varying from that to greenish white.

P. Pennsylvanicum is larger in every way. Frequently it stands three feet high, and may be stretched to a height of five feet or more. Its flowers, larger and looser than the foregoing, are of a light rose color. Both varieties are good honey-plants, and both prefer but do not require fertile and rather moist soil. Neither of them deserves to be called smartweed, which is an entirely distinct variety of the same family.

Polygonum hydropiper, smartweed, or water-pepper, grows to about the same size as heart's-ease. The leaves are more slender, and of a lighter green. The flowers are greenish white in color, and sparsely set on a long raceme-like spike. If you chew one of the leaves, you will need no one to tell you why it is called smartweed. They have a pungent, burning taste, which is entirely absent in heart's-ease. It seldom grows except in moist places, hence the specific name, *Polygonum hydropiper*, the last word meaning the same as one of its common names, "water-pepper."

A tea made of the leaves and stems has the property of inducing perspiration, and is considered an excellent remedy for colds. Inexperienced persons are frequently heard to complain that the smartweed they have gathered for this purpose "hasn't any taste to it." They have been gathering heart's-ease instead of smartweed.

Owing to the unusually cool weather that prevailed so much of the time this fall, many days preventing the bees from leaving the hives, our crop of heart's-ease honey is not nearly as large as it should have been, though it is of unusually good quality. I send you a sample of it.

Dayton, Ill., Oct. 4, 1888. J. A. GREEN.

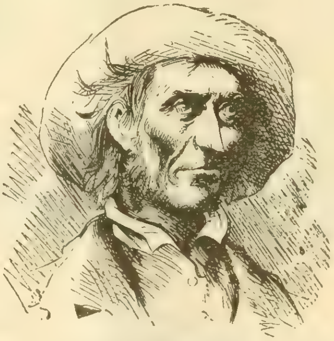
RAMBLE NO. 8.

AT THE FAIR; THE GIRL I LEFT BEHIND ME, ETC.

THE Rambler having read much about exhibits at fairs, early in the season he resolved to make a grand exhibit, and astonish the natives. The first venture for 40,000 Harmer 5-cent packages resulted disastrously, as heretofore described. This was a sad setback, but it did not entirely discourage me, for I was confident that a grand display could be made with my tons of comb and extracted honey. I prepared to let my bees loose as early as possible on empty combs and sections, but a cold May joggled our hopes a trifle, and it was fully up to the 13th of June before our bees began to contemplate the storing of honey in the surplus stories. Clover yielded sparingly, as though each blossom was afraid it would lose too much vitality. Then our old friend linden sat right back in her old rocking-chair and grimly refused to do any thing for apis, but coqueted through her leaves with a few worthless aphides. The exhibit scheme was clearly discouraged, and, instead of taking a small amount of off-color honey to the fair I resolved to wait until a more favorable season. The fair must, however, be attended, and, donning my Sunday clothes, and taking pony Nig and my best girl, away we went with the crowd and the dust. It would only tire you to enter into details, how we feasted on peaches, ice-cream, lemonade, popcorn, and peanuts. Whew! didn't we have a good time, even if it *was* hot and dusty?

We heard an organ, and some one singing in Domestic Hall, and that reminded us that there was a fair going on around us. Honey is usually displayed in this hall, and we kept up a sharp lookout for an exhibit of sweets, and at length found alongside jars of pickles, etc., a crate or two of honey, and a fruit-jar filled with extracted honey. It seemed there was a lack of interest among bee-keepers, or they were short of exhibiting material.

No bee-hives or fixtures were visible, but there was a grand display of agricultural machinery. While looking up the honey, I lost my girl in the crowd, but consoled myself by looking over a seeding-machine. While thus engaged with several farmers, a word was dropped about alsike clover and bees, and I discovered that three of the crowd were bee-keepers. We three immediately formed an interesting convention. The chief talker bore the name of Palmer. He came from the chestnut hills of Fort Ann, and was a bee-hunter. Already 21 swarms had been captured, and many more would have been found but for an unlucky ankle sprain.



PALMER, THE BEE-HUNTER AND APIFUGE MAN.

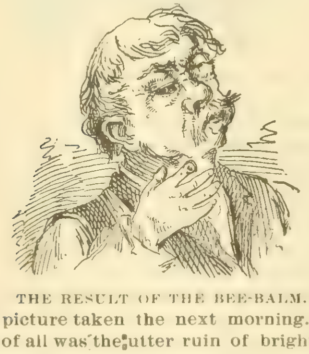
Mr. Palmer did not have a very large apiary, but had always experienced good luck, for he used a bee-charm, or balm. He explained that this charm would draw bees from a tree miles away. With it, queens could be introduced immediately; bees could be united, and, when rubbed on the hands and face, bees could be handled with impunity, without a particle of smoke.

It is needless to say, that the Rambler was all attention, and mentally resolved to have this wonderful balm, even if it cost a whole dollar. Just imagine how we could knock the spots off from that English Grimshaw with his apifuge.

Mr. P. was seemingly ignorant of the value of this wonderful balm, for, without urging, he gave us the recipe: Equal parts of the oil of anise and the oil of goldenrod. Mix thoroughly. A half-ounce bottle would cost only 10 cents each, or 20 cents for enough to last all summer. It could be purchased at a drug-store about three miles distant. Our bee-convention soon adjourned, and I saw and thought of no more fair until Nig and I were in the outskirts of the village, three miles away, when I was overwhelmed with vexation, and almost said bad words; but I did say, "Hail Columbia! where is my best girl?" I was afraid she would be looking around distractedly for me; but that wonderful apifuge was to be purchased, distraction or no distraction. The oils were obtained, and, wrapping in many folds of paper, I put them in my inside vest-pocket, and was soon on the fair-grounds again. The best girl was somewhere in that crowd of 8000 people. I asked about a dozen persons if they had seen a girl wearing a brown hat and white feather. Yes, they had seen her right over there, but I found it was some other chap's girl, every time. Knowing her tastes quite well I looked over the poultry, the sewing-machine, and cow departments, and was just about giving up the search in a terribly bad state of mind, when, chancing to pass an insignificant Punch and Judy show, I found my best girl laughing as though her heart would break. I felt indignant, clear down to my boots, and was just going to say something severe, when she turned and smilingly beamed on me with her lustrous black eyes, and I just laughed at Punch and Judy too, harder than she did.

Our conversation on our way home was somewhat disjointed. I talked of apifuge, and she of the great milking qualities of a certain cow on exhibition.

The next morning found me early in my apiary. The oils were mixed, and, rubbing some on my hands and face, I was as aromatic as a fresh rose. I opened a bee-hive, and how remarkable it all seemed, managing bees without smoke or veil! "What a revolution this will make!" said I. I lifted out a frame. A dozen bees prospected around on my hand. One bumped against my nose, and no stings. I began to enthuse all over, and slung my hat over the next bee-hive. But that was my Waterloo, for a bee got into my hair. The killing of it, and the consequent poisonous aroma, aroused the whole swarm, and—the Palmer apifuge was no protection. To make a long story short, let me show you my picture taken the next morning. But the saddest of all was the utter ruin of bright apifuge dreams and hopes of the RAMBLER.



THE RESULT OF THE BEE-BALM.

Now, friend R., there are two things about your story, which I do not understand. The first is, that I never knew there was such a thing as the *oil* of goldenrod to be had at *any* drugstore; and even if there is, I am not surprised to learn that it did not have any effect in mollifying the sting of the bees. The other is, that the great big State of New York should contain even one girl that would not be *offended* to be neglected in the way you mention. I was breathless with excitement, in reading your narration, to know whether, when you found her, she turned the cold shoulder, and would not recognize you at all, or whether she gave you a reproof that was even worse than bee-stings; and I was obliged to come to the conclusion that she had the remarkable and unusual *grace* to make the best of the situation, and enjoy herself in *spite* of your bad behavior. If so, she has perhaps unconsciously taught a grand moral, not only for all womankind, but mankind also.

OLD COMBS VERSUS NEW.

IS SIZE OF THE CELLS IN THE FORMER A LOSS?

In regard to the question raised by Dr. Miller, "When to melt old brood-combs," I will venture some remarks taken from personal observation, even though I should differ from so great authority as the editor of GLEANINGS.

The size of brood-nest, length of breeding season, and number of batches of brood hatched in the combs are of more importance than the mere years the combs have been in use. But to discuss these propositions seriatim would require much too long a communication.

That the cells are materially diminished in size, and the bees are dwarfed for life in combs in which many generations of brood have been reared, is a proposition easily demonstrated, if the apiarist will carefully note and compare results. These little ladies, which were laced too tightly in swaddling-bands (cocoons), I surmise are responsible for the notion that there are two kinds of black bees. I have frequently noticed, when the mothers of these little ladies changed habitations, that their daughters brought up in roomy houses were as large as other children, but their aunts were prim little ladies like those who vacated with "grandma." I have also observed in these hives, many bees with crippled (imperfect) wings, some with only stubs of wings. That there will occur cases of malformation in the young of all animated beings, admits of no doubt; but when deformity occurs in a great number of cases, it is evident that there is something wrong in the environments of embryonic life. No one, I think, will dispute this proposition. Many of these cripples are summarily expelled by the perfect bees dragging them from the hive; those not so disposed of are lost on the playgrounds; but should any of them survive the first two weeks, their career terminates when they start to the fields.

The raisings of such bees are a loss of time, honey, and money to the apiarist. When many of these cripples appear, I would advise melting the combs. If Dr. Miller wishes to determine the amount of exuviæ in the cells of different-aged combs, let him put a piece of brood-comb 1, 2, 3, 4, 5, and 6 years old into a solar extractor and melt the wax between the sides and base of the cells; when the wax is all drained off, and the combs have got cold, each old cell can be separated from its fellow like so many grains of corn. Recent cells, or those from which not more than one or two batches of brood have hatched, will generally collapse at the melting of its wax wall; but old cells will present very firm cocoon walls, perhaps much harder than the doctor imagines. The lateral diminution in size (to my eyes) is much greater than the longitudinal. Until recently I believed the bees purposely lengthened the brood-cells in old combs, to compensate for the exuvial shortening at the base. That conclusion I find to be erroneous. The true cause is in capping the brood; the cap sheet covers the entire surface of the combs; and when the young bees cut the caps off, that portion over the cell wall is left, thus lengthening the cells out about as much as it is filled up at the base; but if the combs are so close together that only a bee-space remains, they must either leave their babies bareheaded, or cap from the inner edge of the cell, in which case the cells would become permanently shortened, and they use them for store combs, mostly pollen, and raise brood in the outside combs. I have seen two or three combs thus used for stores in the center of a ten-frame hive, while brood was raised on the outside of the outer combs.

THE FRUITS OF RELIGION.

On page 614, GLEANINGS, Aug. 1, 1888, friend Burgess says: "I used to be religious in bygone days. I do not mean to be understood to be opposed to religion, only the superstitious part of it. I was, indeed, very superstitious. I regard the morality of religion the redeeming quality." Friend Burgess, the religion of Jesus Christ has no superstition in it, however superstitious some of its professors may be. Morality is some of the fruit and foliage of the tree of life, springing up in the heart of the believer in the union of the soul with Jesus Christ through the redeeming and cleansing power of his blood. False religions have nothing but their moral phase to commend them, while the religion of Jesus embraces morality with every other virtue of this life, even to loving our enemies and eternal life and happiness in the world to come. Friend B., in the midst of your most happy moments out of Christ, just look seriously into your heart and ask yourself, "Am I happy?" Is there no unsatisfied longing? I have, perhaps, had as much earthly pleasure as falls to the lot of average mortals; but of happiness I knew only the name until I found it in the love of Jesus. I have had more complete happiness in one short hour of sweet communion with my Savior than all the "so-called" pleasure this world ever afforded me when Jesus was not first. Tongue can not express, neither hath it entered into the heart of man to conceive of the ocean of happiness that bathes the soul of the believer, in close communion with our dear Savior. Oh that all would take of the water of life freely!

E. S. ARWINE.

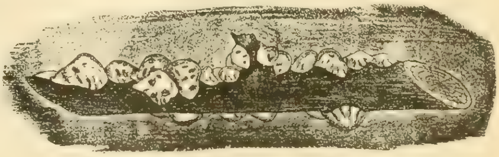
Tulare City, Cal., Sept. 25, 1888.

Friend A., your points are good. Some of them, at least, I think are partially correct; but on other points I should want to make some further extended observations before I could agree with you. I have seen crippled bees; but where I have seen them I can hardly think it was caused by the brood-combs being too old, but, rather, on account of the depredations of very small moth worms. These moth could be detected only by pulling the comb to pieces, and examining it near the base of the cells. I have never seen small bees, that I know of, that I had reason to think were caused by the combs being too old. I have, however, often found pieces of brood-comb in transferring, that I deemed were so heavy and so thick as to be unprofitable, and I do think I have seen combs used by the bees only for store-combs and pollen, principally the latter, as you state it.—The religion of Christ Jesus puts down self and exalts the Creator, in a way that nothing else does in this wide universe that I know of.

BARK OR SCALE LICE, AGAIN.

PROF. COOK GIVES US SOME ADDITIONAL FACTS IN REGARD TO THEM.

HOW good it would be if only bad pennies returned! But that is far from being the case, for bad insects are ever and anon doing the same thing. Mr. T. J. Anderson, Joseph's Mills, W. Va., writes me in substance as follows: "I send you a short section from the twig of a poplar (tulip) tree, on which you will find some insects, strange and new to me. The tree to which my attention was called by the hum of bees is literally covered in many places by these insects. Please give name and probabilities through GLEANINGS. I am fearful that the trees are doomed. Will you be so kind as to write me at once, personally, as I wish to know if the trees attacked should be destroyed?" This matter, though well written up a few years ago, is one sure to be of recurring interest, over and over, as the years go by. Thus I deem it important to write the subject up quite fully. Let me say that this insect is fully described with illustrations in my "Bee-Keeper's Guide."



LECANIUM TULIPIFERA—NATURAL SIZE.

This insect is *Lecanium tulipiferæ*, and the large scales (see figure) sent by Mr. Anderson are the dead remains of the mature louse. Not long before Mr. A. sent the specimen of twig, which, though only two and one-half inches long, and about the size of a common lead-pencil, has thirty full-formed scales on it, each scale covered hundreds of eggs. These eggs had hatched when the specimen reached here; and the cotton inclosing the twig, the box, and the inclosing paper were all covered by the thousands with little hungry oval lice, the form of which is well shown in the "Bee-Keeper's Guide," and in my book, "Maple Sugar and the Sugar-Bush," p. 18. Had the twig been left on the tree, the wee young lice would have exercised the right of "squatter sovereignty," and each become a homesteader, settling on a small area of the leaf. These scale lice belong to the true bugs, and, though so small, each is armed or equipped with an effective suction-pump, its slender beak. This it inserts in the tissue of the leaf, and then it commences to suck the sap and life from the tree. Though each one is so small, yet from the millions of sappers, and their constant pumping, the tree soon commences to languish, and, unless relief comes, will die in about three years. Just before the autumn winds carry the leaves to the ground, the now partly grown lice migrate to the tender twigs, and once more anchor by again inserting their suction-pipes, which are now much larger than at time of hatching. As the spring sets the sap in rapid circulation, the lice commence a more rapid pumping, as instanced by their rapid growth. Soon they begin to secrete and let fall a kind of nectar, which, if the flowers fail to secrete a more wholesome nectar, the bees fall to and collect. This serves the lice by attracting the wasps and bees, which, in turn, keep the insectivorous birds, such as the sparrows and orioles, from feeding on the lice. This is no fancy sketch. I have actually seen the birds driven away repeatedly by the bees and wasps. I have seen a song sparrow and oriole commence on a twig in early spring, and clean it entirely of the enervating lice. This was in fruit-bloom, when the bees could do better than collect this insect secretion. Soon the bees could not get flower nectar, and repaired to the lice secretion, when the birds ceased to visit the trees. Soon other flowers attracted the bees, and the birds returned. There is something intensely interesting in this balance of nature and the conflicts to preserve it. Nature has arranged so that all life must struggle to exist, and has provided that all shall have a chance.

This subject interests the bee-keeper in another way. The honey from this bark-louse secretion is not fit for market nor for the bees in our long hard winters. For manufacturing purposes it gives satisfaction. There is danger, too, unless great caution is preserved, that this will be mixed with the fine honey, and ruin all.

In July the eggs are deposited under the scale, and the parent louse dies; yet the scale, now large, brown, and plump (see figure) remains to cover and protect the lice. Thus we understand the full life history of the insect.

That these insects would soon kill the trees if left undisturbed, there is no question. Some fine tulips on our college campus did die from this cause; yet this rarely occurs. The very abundance of the lice makes the path of their enemies, birds and insects, a very smooth one, and so very soon the lice are conquered and our beautiful trees saved. Twice in twenty years our trees here have been attacked seriously; but in both cases our insect-friends and the birds have come to the rescue in time to save nearly all the trees. Four years ago these lice were very abundant, and our trees seemed certainly doomed. This year it was hard to find specimens of the scales to show my class. Thus Mr. Anderson may hope and expect to see the lice exterminated before the trees are destroyed. A few trees may be killed, but I think very few.

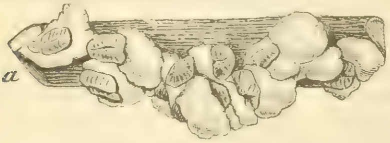


FIG. 2. SCALE LICE ON THE MAPLE.

In case a shade-tree in our grounds, much prized, is the scene of attack, and its vigor or life threatened, there is yet hope. I have found that the mixture of kerosene and soap—one quart soft soap or ¼ lb. hard soap, one pint kerosene, and two gallons of water—is a sure specific against the lice. The best time to apply this remedy is in early spring, before the leaves put out.

The maple cottony scale (Fig. 2) works much like the tulip scale, except that the eggs are placed in a large mass of cotton-like substance which often raises the scales quite away from the tree, as seen in Figure 2, taken from "Maple Sugar and the Sugar-Bush." A. J. COOK.

Agricultural College, Mich.

Friend Cook, you do not tell us exactly why the birds left when the bees came. Do the bees ever try to sting the birds? I know that some kinds of birds are fond of bees, but I did not know that bees ever *drove* birds from any thing.

HONEY-STORING OVER DUMMIES.

FRIEND GREEN GIVES US SOME VERY VALUABLE FACTS FROM EXPERIENCE IN REGARD TO THE MATTER.

IN the matter of bees working in sections that are over dummies at the side of the hive, the present season (during which but little honey was gathered until the cool weather of autumn) has given me considerable experience. My chaff hives were contracted to six frames, and had the usual wide frames in the upper story. This arrangement left the four central sections of each frame over the brood-nest, while the two at each end had only the dummies below them. Except by a few strong colonies, the end sections were almost neglected until the heavy flow from heart's-ease in the fall. If nearly finished sections were put at the ends of the wide frames they would be finished, though often a new section placed in the middle at the same time would come out ahead.

This state of affairs continued in many colonies, even while honey was coming in freely in the fall. I remember one colony which built out all the middle sections in both tiers of a set of wide frames, and finished all but eight or ten before a particle of work was done on the end sections. I am talking of chaff hives now, remember, so that Dr. Miller's explanation will hardly fit this case unless we admit that even a chaff hive was not protection enough during the past summer. This could hardly be the case, though, as single-walled hives better arranged gave better results.

Some might say that the case mentioned is an argument in favor of open-side sections. Curiously enough, several adjoining wide frames in this hive were filled with open-side sections — more than there were in all the rest of the apiary.

SEPARATORS.

In various ways the bees showed that, when honey is coming in slowly, they do not like to undertake too large a job at once. Some small colonies built out and finished the two central compartments of the old-style Heddon case, without doing any thing in the ends. In some supers of this style I used wood separators one-eighth inch thick, putting enough to crowd the sections close together. Generally two separators were used in each compartment, one on each side of the central section, leaving three sections on each side of this without separators. According to the opponents of separators, and most of the champions of side-opening sections, the bees should have been a little shy about beginning work in this one separatored section, when they could take their choice. Were they? Oh, no! they went right into it, and in almost every case these separatored sections were finished before the others, and sometimes long before. He who says that separators are any hindrance to the bees, certainly does not know what he is talking about. JAMES A. GREEN.

Dayton, Ill., Oct. 5, 1888.

Friend G., the results you speak of are just about as I expected. There is, however, one point that I had not thought of for at least several years. It is, that, during a poor season like the last, where the surplus chamber is divided off into small apartments, and these small apartments are pretty well separated from each other, the bees from the field fill these small apartments when they would do comparatively nothing in one large apartment.

UNITING.

MRS. AXTELL TELLS HOW SHE DOES IT.

WE thought we had got all weak colonies built up during the summer; but by taking away old or hybrid queens (as we wanted to improve our bees, if we could not get honey), and giving them pure queen-cells we caused weak colonies to dwindle. These, unless kept supplied with hatching brood, are apt to dwindle fast. Such was the case with some of our colonies not supplied with brood. A colony may look to be of fair size during a honey dearth, as all the bees cluster in or around the hive and in the top part of the combs; but when they get to gathering honey they go down among the combs and out among the flowers. Accordingly, on examining each hive in the apiary separately, to determine the exact condition of each one, we found we had several colonies which it would be better to unite and use the extra queens to give to queenless ones. When the honey got to coming in fast, at the rate of 400 lbs. or more per day, we united several such colonies by sprinkling the bees on the combs with a little sweetened peppermint water, with the loss of hardly a bee or of one of the ten queens. We caged the queens and put a small chunk of honey over the mouth of the cage and laid it on top of the brood-frames, and let the bees remove the combs and liberate her. Since uniting, how those strong colonies do bring in honey!

We had one weak colony standing by itself. When bees were flying hard, bringing in honey, we drew the weak colony back and let the bees that came in heavily laden go into a weak colony that stood by its side. The latter was drawn a little closer to the stand of the one I had pulled back. The queen, we gave to a colony that did not succeed in raising one. Some colonies seem unfortunate, and remain for weeks without getting a queen, while others get a laying queen in a short time. Well, to return to the weak colony:

When the old bees had about all got out, we carried the combs to another hive that would be the better for a few bees, and brushed off all the remaining bees in front of the hive. As they were young bees they went in and were received all right. The four combs were then used to strengthen up other weak colonies. In that way one weak colony successfully helped five other weak ones. When bees are gathering honey very fast, we find we can double them up almost any way, provided we do it just right. When they were not getting honey I have sometimes thought it was about as well to let the bees alone as to try to unite.

FERTILE WORKERS.

In making a thorough inspection of each hive, we found, at Timber Apiary, a colony not working in boxes, which is good evidence that something was wrong, when nearly all others were doing something in sections. On going into the body of the hive we found only drone brood and many drones, the work of fertile workers. We accordingly took the combs to the furthest part of the apiary, and brushed the bees all off upon the ground. The worker bees returned to their hive. We gave them two combs of brood. They went to work, seemingly encouraged. Only a few drones returned. Next day, when the bees were working hard, we drew that colony back and let its bees, as they came in laden, go into a colony by its side. They were received all right. The remaining few we brushed off from the combs in front of the hive, and we used the brood elsewhere.

Roseville, Ill., Nov. 1, 1888. MRS. L. C. AXTELL.

HEADS OF GRAIN

FROM DIFFERENT FIELDS.

BEE-FERTILIZATION NECESSARY FOR THE PROPER FILLING OF BUCKWHEAT SEED.

NOT long since the question was asked you, if bees injured buckwheat. You told him to compare his with those that had buckwheat, out of the range of bees. That suggestion was very good, if he could find such a place. I think I will venture the assertion, that, without the aid of bees or some other insect to fertilize the plants, he could not raise one single grain of buckwheat. I had a test of it in 1881, the year of the drouth. I sowed my buckwheat at the usual time, but it was so dry it did not come up till the first week in September. The fall was uncommonly warm and seasonable. The growth was good, and there was no frost till the 15th of November. It was the most favorable weather for buckwheat to fill I have ever seen, but not one grain could I find on it, nor could I see a bee on it, notwithstanding it was within 100 yards of my apiary. I suppose there was no honey in the bloom.

JAPANESE BUCKWHEAT.

I bought of you last summer half a bushel, and sowed it on the 16th day of July. I got 36 bushels, machine measure. I am selling it at $2.00 per bushel. It was the best investment I ever made. On the same lot of land, at the same time, I sowed three pecks of the common variety, and got 29 bushels. R. ROBINSON.

LaClede, Ill., Oct. 22, 1888.

Friend R., the facts you give seem to indicate what has so often been stated before, that a good flow of honey from buckwheat is followed by a good yield of grain, and vice versa. I have known crops of buckwheat that looked promising and fair, and yet yielded no grain. The explanation has been given, that the seed will not set unless we have *cool nights.* If it can be proven that a crop of grain can not be raised where there are no bees to visit the blossoms, it will be a tremendous argument in favor of bee culture; but I hardly believe this is always the case. Can any of the rest of the friends tell us more in regard to the matter?

NEARNESS TO RAILROAD NOT DETRIMENTAL.

Last fall Geo. Stocks gave me two swarms that had no stores. I fed them, late in the fall, on syrup in butter-dishes, or "boats," and put them in my cellar on a bit of unfinished wall. They were about fifteen feet from the railroad fence, that being fifty feet from the center of the track. The first train disturbed them about as much as a good smart rap on the hive would, but in three or four days they did not notice the trains, and wintered all right, except one which was queenless in the spring.

Nashua, Ia., June 27, 1888. J. C. Stocks.

NOTES FROM NEW SOUTH WALES.

I dare say a few facts on apiculture in this district would not be out of place. Having seen a description of a frame hive in an American paper some three or four years ago, we at once adopted it and transferred four common boxes into them; since then they have increased to 30 hives by natural and artificial swarming. There is scarcely any winter to speak about, and seldom any hard frosts. The greatest honey-yielder is the eucalyptus, of which there are a great many kinds, all flowering at different times of the year. The best honey we get from the mangrove heath flowers, and a little orange. On the whole, you can extract 9 months out of the 12. Since I started, several other neighbors have gone in for box frames, mostly on the Berlepsch pattern. One man has 60 hives on this principle, and is a specialist. I like a frame 14 inches long by 7½ deep, on the Langstroth principle, for this climate. It is impossible to keep heavy sealed combs from breaking out of larger frames in warm weather. Walter E. Bagot.

Broadwater, New South Wales, Aus., Sept. 2, 1888.

Thanks for your notes. In regard to heavy sealed combs, you can render them perfectly secure by having them wired, as given in our price list and described in our A B C of Bee Culture, even in your warm climate, we think.

WILD CUCUMBER AS A HONEY-PLANT; THE QUALITY AND QUANTITY OF THE HONEY.

I have sent you a package of the wild cucumber seed as they grow in this country; and as there seem to be more than one kind I will describe them as they grow here. This vine, from the time it comes up till the time it blooms, can hardly be told from the tame cucumber, except it grows faster, and has more tendrils. The female bloom is about half as big as a tame cucumber-blossom, and looks about the same. The male blossom grows in bunches of perhaps 20; these are about the same as the larger blossoms, except they are much smaller. Each one of these blossoms has a small burr, or seed. These seeds are covered with thorns like the cactus, and are very bad about working their way into the flesh. The farmers in this country growl because these plants grow all over the fences and cornfields. They are very bad about corn-cutting season; but for my part I would just as soon see these vines grow on the fences as to see the same grow up with cockle-burrs or morning-glories. I have never seen any thing yet that beat it in the production of honey; but the bees seldom work on it after 11 o'clock A. M. The honey is as light as basswood honey, as rich, and much thicker. P. C. Chadwick.

Loring, Kan., Oct. 24, 1888.

PROPOSES TO SELL OUT.

For two years my bees have not made honey enough to live on. I have had to feed, even through June. The young swarms coming out in May or April would have to be fed from the beginning. The first two years I went into the business it was a decided success; but I moved from where I then lived to Hephzibah, a little town, and here they can't feed themselves. I want to sell my stock of bee-fixtures. I don't think I can sell them here, as those who have bees keep them in old-fashioned boxes, and believe if they use the new things their luck would be gone. F. E. Tarver.

Hephzibah, Ga., Oct. 23, 1888.

The last two seasons have been remarkable for failure of the honey crop throughout almost all the United States. Very few localities in either season furnished their full quota. It is true, your old locality may have been much better than the one you are now in, but probably not. We would not advise you to give up bees yet. Many a bee-keeper has had similar success; but another season with the bees, accompanied with perseverance, amply repaid for the money invested and the loss from the two previous seasons.

OLD-FOGY NOTIONS.

It is quite amusing here in the mountains of Western North Carolina to hear the old-fashioned bee-keepers talking about their bees. Here in the neighborhood of Dark Ridge there are about 100 hives, and all blacks except some of mine. Some around here think that the Italians are superior only as robbers. One old man expressed his opinion about honey. He said it was all honey-dew, but in falling it lodged in the flowers. Another man said bees gathered their wax from the fields. It is amusing to hear some talking about the "old king." There are no hives used here but the round gums, with the exception of a dozen or so, which are the movable frame. The honey is obtained by prying off the head and cutting out the honey with a knife. Sometimes as much as fifty pounds is obtained in this way. The smoker used is a bundle of rags. Comb fdn. is almost a stranger. Feeding is not practiced. No bee-journals are taken, nor bee-books are read. I have commenced to try my luck in building up an apiary. I am going to prosecute the business until I am convinced that it will not pay. I have adopted the standard L. frame; have the A B C; am taking Gleanings, which I could not afford to do without at any price.

G. W. McGuire.

Dark Ridge, N. C., Oct. 15, 1888.

WHAT IS THE MATTER WITH THE HONEY VINEGAR? OAK SAWDUST FOR STRAWBERRIES.

Can you or any of the readers of Gleanings tell me what is the matter with our honey vinegar? At times it "dies," or loses its strength. Should the "mother," or vinegar-plant, be left in or removed? We much prefer honey vinegar to any other. Have you or any of your readers had any experience with oak sawdust as a winter cover for strawberries?

D. W. C. Matthews.

Ypsilanti, Mich., Oct. 22, 1888.

Friend M., I can not answer your question in regard to vinegar; but I do not believe that good vinegar, properly made, ought to lose its strength. — Hardwood sawdust is good for strawberries, or any other kind of small fruit, for it very soon decays so as to make a substance very much like chip dirt. Rotten wood or rotten logs make an excellent manure or mulch for the berry family. Pine sawdust is not as good, because it is a hard matter to make it rot at all, and very much pine sawdust will injure your plants—at least, quite a good many people say they have had their gardens seriously harmed by using much pine sawdust.

ADVERTISEMENTS THAT DO NOT PAY.

The following appeared in our issue for Sept. 15:

> Bees at $1 50 Fifty full swarms with queens, $1 50. If Simplicity hive and comb is wanted, add 10 cts. per comb and 50 cts. per hive.
>
> F. H. McFarland, St. Albans, Vt.

Below is what our advertiser says in regard to it:

I have never seen the advertisement, nor did I get a single reply to the same. I guess that bees are below par this year. F. H. McFarland.

St. Albans, Vt., Oct. 30, 1888.

Well, I do declare! Had friend M. asked my advice in regard to inserting such an advertisement, I should have told him that, in my opinion, he would certainly sell all his bees. Only $1.50 per colony, and 10 cents apiece for the combs, and 50 cents for the hive! As eight combs would be a great plenty to ship the bees with. hive, bees, and comb would cost only $2.80, and yet not a purchaser nor a single application! I guess you are right, friend M. Bees are certainly below par; and, in fact, bees in the fall of the year are almost always slow sale, and just now the demand is very small, because of the past poor season. The moral seems to be, that bees in the fall of the year, without stores to winter, are hardly worth advertising. In the above case it would seem that the above hives would certainly be worth 50 cents each, and the combs ought certainly to be worth 10 cents each to melt up for wax; therefore $1.50 is all you have to pay for bees, brood, and more or less honey stored in the combs. If this notice does good in no other way, it will probably deter anybody from sending us an advertisement of bees this fall. When they are wintered over, and there is a prospect for honey in the spring, the same bees ought to sell readily at $5.00 per colony, including the hives and combs.

CHLOROFORMING; ANOTHER WAY TO GET BEES INTO A POUND CAGE.

I had my first experience with using chloroform with bees last week; and as the experiment was so satisfactory I give it. A friend told me that a party living about five miles out of town had a colony which he intended to destroy, as they had not sufficient stores, and that I could have the bees if I would go with him after them. As they were of a good Italian strain I told him that I was always happy to receive such calls. We arrived at the place about sunrise, with a bee-cage, thinking that, as it was very cold, we could easily shake or brush the bees into the cage; but they were so lively that we could do nothing of the sort without losing a great number. As we had some chloroform with us I tried it by pouring about two drams into the hive, closing it, and waiting results. In two or three minutes, upon opening the hive we found nearly all the bees on the bottom-board, "bottoms up," and we simply turned them into the cage. As they appeared to be completely dead, I supposed that they would be of little use; but in about ten or fifteen minutes they were *all* nearly as lively as ever. I put them into a new hive with frames of comb, but no honey; and they carried down three pounds of sugar syrup the same afternoon. There were very few dead bees upon the bottom-board the next morning. S. A. Russell.

Newmarket, Ont., Oct. 15, 1888.

No doubt your plan will work, friend R., but we should find it a great deal more trouble than to put them in with the tunnel, as described in the A B C book. Didn't you find a good many of them away down in the cells, after you gave them the chloroform?

BEES INJURING FRUIT.

Notwithstanding my trouble last year with the bees damaging the small fruit (especially the red raspberries), I have not been troubled the past season. I have not seen a single bee on a berry this year, with the exception of some red raspberries, which, after being crated and placed in the shed, had to be protected. You think it very unusual for bees to attack berries. Ever since I have raised the Turner Reds I have been bothered more or less every season until the present. I can account for it this season only by supposing that the bees were attracted away from the berries by the honey-dew on what we call the black-jack oak. They were humming around them from morning till night (but the honey they made was dark, and not first class). Another reason, we had more rain this year than for the past two or three. I notice the bees are more troublesome in dry and hot weather. This year the bees troubled the early peaches considerably, but I believe it was just as stated in last Gleanings, Sept. 15, that only those that were beginning to rot were attacked, though sometimes the speck was hardly noticeable. I examined closely. The bees did not pay much attention to the peaches till after we had a big rain, which caused them to rot. I think it a little strange myself, that I should be the only one to make a report of bees damaging berries. Is there no one else who has had a similar experience? J. A. Carter.

Varck, Kan., Sept. 30, 1888.

A SUDDEN YIELD.

It is now nearly nine weeks since we had the last rain, to do any good, and pasture-fields are drying up. The prospects for a fall crop of honey a short time ago were very bad. About six or eight days ago the bees commenced gathering honey, and now all strong colonies have combs in the brood-chamber all filled, and are working in sections. Even three and four frame nuclei have their combs filled solid with honey. All my bees fly south, southeast, and southwest. There is a marsh south of us that is from one-half to two miles wide, and perhaps 100 or 200 miles long, that used to be a grass marsh that would make from two to four tons of hay to the acre. Several years ago the State cut a large ditch through it. Now the grass is gone, and there are thousands of acres, as thick as it can stand, of the bloom I send you, mostly the smaller, and that is what the bees are working on. It is two miles to the nearest point from my apiary to the marsh. I have been out on the marsh twice this week, and I know that my bees go from four to six miles. I. R. GOOD.

Nappanee, Ind., Sept 6, 1888.

Many thanks, friend Good. I have seen this same yellow flower so thick as to make the ground as yellow as if it were covered with yellow snow; and I have known bees to gather honey with great rapidity from such a source. The fact you give us is very interesting. After the large ditch was cut through the wet land, this plant came up as thick as it could stand. How long had those seeds remained in the ground? Cutting a ditch through, or chopping down timber, often gives us some curious results in this line. It has before been stated, that bees fly several miles to find these dense fields of yellow bloom.

SUCCESS IN PEDDLING HONEY.

Friend Root:—I owe a debt of thanks to the friends who advocate peddling as one of the best methods of selling honey. I have sold 4000 lbs. of extracted and 2000 lbs. comb from my spring wagon. The extracted was put up in pails nicely labeled, the pails holding from one pint to one gallon. Comb honey was stored in one-pound sections packed in crates, holding from 12 to 48 lbs. The one-pint pails just suited our Mexican trade. They always want a small quantity at a time, and will take a pint every time I come around. I shall not have honey enough this year to supply the demand, so I have bought more bees and will start another apiary three miles from home. I shall commence the out-apiary with 100 colonies of blacks and hybrids which I shall Italianize. J. P CALDWELL.

San Marcos, Tex., Oct. 5, 1888.

COCKROACHES.

Mr Hiram Adams, of Waukesha, Wis., sends me a cockroach, and wishes me to state in GLEANINGS whether this insect will survive the Northern winters, and become a pest. The cockroaches, like many another of us, like and know how to appreciate good things. So sugar storehouses, groceries, house cellars, and even the kitchen larder, are not infrequently the hunting-ground of these sprightly insects. The cockroach is brown in color, broad and flat in form, and very swift of foot. They inhabit or infest such places as mentioned above, and are also frequently found under the bark of old trees, under boards and rotten logs. If they become too familiar in kitchen, cellar, or storehouse, they can be easily poisoned. Brown sugar and arsenic, or, better, brown sugar and Paris green, will quickly dispatch these intruders. I say, better, Paris green, as there is far less danger from having this in the house. White arsenic is so like soda, etc., that it is dangerous to have it in our houses.

Agricultural College, Mich. A. J. COOK.

MORE ABOUT HEART'S-EASE; THE QUALITY OF THE HONEY.

Friend Root:—After reading one or two articles in last GLEANINGS for Oct. 1, about heart's-ease, or smartweed, as a honey-producing plant, I was surprised to learn that so little seems to be known about it. I had become so accustomed to it, from a residence of 21 years in Illinois, that I thought every one in every locality (at least every bee-keeper) was well acquainted with it. It thrives best on cultivated land, coming up all through the season, but mostly destroyed by cultivation until after corn is laid by, about July 1st. After that time it grows undisturbed; and if there is considerable rain in July the crop is more profuse, it coming up on oat or wheat stubble after the grain is harvested; but it does not grow so tall as in corn, where it reaches three feet or more in height. On strong land the stalk is sometimes the size of a man's thumb, and branches out as large as a common umbrella. The flowers grow in spikes on the end of the branches; the leaves grow on the main stem, where the flower-stem starts from it about the middle of August. If the season is favorable, the honey-flow commences and lasts till frost; as there are new plants coming in regular succession, the honey is clear and thick, and I like the flavor about as well as any honey we raise.

The bees stored very little honey in this vicinity until the heart's-ease came in bloom; then the flow was pretty fair. One stand of Italians I have, made 80 lbs. in 1-lb. sections; hybrids and blacks did not do so well. I do not think there is much surplus in this section. There are some bees, generally small lots, but mostly left to take care of themselves. The poor season last year, and the first part of this, together with the moth and neglect, have destroyed a great many colonies.

J. A. CAMPBELL.

Deland, Piatt Co., Ill., Oct. 8, 1888.

HEART'S-EASE HONEY—THE GIANT VARIETY.

On page 764, Oct. 1st, our friend Prof. Cook wants to know if any one else has discovered a good source of honey in swartweed. At Paw Paw Junction, in New Madrid Co., I opened up an apiary and ran it four years, and then sold out to Dr. I. X. Illinski, of East St. Louis. It is located in the overflowed lands along Little River, in the county that was sunk by earthquake in 1811 and '12. Within half a mile of the apiary commences this wonderful plant, called here "giant smartweed," and it is rightly named, for it is a real giant. It grows entirely in the overflow, being nearly at all times covered with water to within two or three feet of the top. The stalks are very large, many of them being an inch and a half in diameter at the water's surface, and, when pulled up straight, are from 10 to 12 feet tall. The flower-stems are from six to twelve inches long, and the seeds are like small buckwheat, excepting that they are a shiny black. It yields a very thick heavy honey of a nice amber color. When new it has a rather strong flavor, but ripens into a very mild and pleasant taste, and so thick in cold weather it will not run. I never saw any of it candied. The last year I was there we kept account. From the 10th of Sept. to the 15th of Oct., every hive that we weighed or measured gave us five gallons of extracted honey (and we extracted only what was sealed and capped over), every 12 days in good weather, and several made it in 10 days. Of course, these were all double-storied hives; but very little was extracted from the brood-chamber—just enough to give the queen plenty of room for brood. So you will see that this kind of smartweed is very rich in honey.

Walden, Mo., Oct. 15, 1888. SAMUEL D. BATES.

Thanks, friend B., for your excellent report in regard to the great big heart's-ease along the Mississippi River. Five gallons of honey in 12 days would be equal to 5 or 6 pounds of honey per day, and this would certainly be a big yield per colony, from any source. You speak of an earthquake that sunk the ground in 1811. Now, I am curious to know about this. Is it an actual fact, or is it only a sort of tradition, or guess, that it was an earthquake?

HEART'S-EASE, OR SMARTWEED.

I think the honey I sent you, and all I got, was from what I call smartweed, for my bees did nothing until smartweed bloomed, and then they just fairly hummed on it from morning till night. Some of my neighbors call it heart's-ease, but it is what I always heard called smartweed where I was raised, which was Northeast Missouri. It grows on low land; is very bad here in cornfields, in river bottoms, and especially branch bottoms. J. O. BARNES.

Hickman, Ky., Oct. 9, 1888.

I will explain to our readers, that friend Barnes sent us a sample of his honey; and from the looks and flavor I pronounced it *blue thistle*, although I had not seen nor tasted any for some years. From the above it transpires—that is, if friend B. is correct—that honey from heart's-ease is not only of fine flavor, but about as light in color as clover. I still think there must be a mistake somewhere, for the samples of heart's-ease honey sent us from the West were nothing like that sent us by friend B.

NOTES AND QUERIES.

CAKES OF CANDY FOR LATE FEEDING.

DO you think it will do to lay candy cakes on top of the frames this winter, for part winter stores? Some of my bees are short. I think I can get them through safe this way. E. E. NICHOLS.

Westville, Ohio, Nov. 5, 1888.

[We have wintered colonies a good many times by putting cakes of candy over the brood-nest. If there is time enough, however, we should prefer to feed them syrup, so that they might have sealed stores.]

ASTERS.

The plants sent by R. H. Campbell, Madison, Ga., and by T. E Hanbury, Atlanta, Ga., are both asters. These plants are widely reputed as excellent honey-plants. A. J. COOK.

Agricultural College, Mich.

THE OAK-TREE NEWSPAPER YARN A HOAX.

The story of the oak-tree near Griffin, Ga., which yielded so much honey, is all a hoax. We have no such trees in Georgia, neither do we make any maple sugar. At any rate, I never heard of any, and I have seen but few trees called sugar maple.

Fish, Ga., June 8, 1888. J. M. HARRIS.

[Friend H., no one had any doubt, I presume, but that the whole matter was a hoax — that is, no one who knew any thing of bees or maple sugar either; but I do think it is a shame that such stories should pass the rounds of the papers, especially when they are presented with the appearance of being a narration of actual facts.]

KITTENS IN A BEE-HIVE.

I bought some bees, also some good cheap empty Langstroth hives, second hand, at 70 cents. They were half full of moth cocoons and mud-wasps, and one had two kittens in it. They belong to a man of the "Blasted Hopes" type. D. KIRKBY.

Toolesburg, Ia., Oct. 23, 1888.

CANNING TOMATOES — A SUGGESTION.

My wife says, if you had told your readers, when canning tomatoes in glass, to set them away in a cool, dry, *dark* place, they would be sure to keep, provided they followed your instructions otherwise. I would vote in favor of the eight-page supplement.

Kingston, Pa., Sept. 22, 1888. M. GARRAHAN.

CUCUMBER HONEY.

There are 12 to 15 acres of cucumbers within 1½ miles of me every year. The bees visit them a good deal, and it keeps them good-natured through August; but I never got any surplus honey from cucumbers except once. I think but little then, unless the weather is very hot and dry.

Bedford, N. Y., Oct. 22, 1888. J. WOOLSEY.

A YIELD OF OVER 5 BUSHELS OF JAPANESE BUCKWHEAT FROM ONE POUND OF SEED.

From the 1 ℔. of Japanese buckwheat that I got from you last spring I raised 5 bushels and three pecks of nice clean seed. We sowed it very thin, using Mape's fertilizer, and it made an enormous growth. M. T. KILTS.

Drakestown, Morris Co., N. J., Oct. 6, 1888.

HONEY SOURING IN THE HIVES; WHAT IS THE CAUSE?

My honey is sour in the hives. It has a vinegar smell. Two of my neighbors have the same trouble. My swarms are mammoth ones, and have been well cared for. J. D. MILLIKAN.

Maud, N. C.

[Friend M., I infer from what experience I have had in this matter, that the honey having a vinegar smell is not yet capped over. If so, you have doubtless before this time noticed that, by the time it is capped, the bees have ripened it in such a way as to get rid entirely of the vinegar smell. I can not tell the source from which this sour honey comes.]

TOP VERSUS BOTTOM VENTILATION FOR CELLAR WINTERING.

Is it advisable, when wintering in cellar in Simplicity hives, to give upward ventilation? If so, how would it answer to remove cover and put three or four thicknesses of burlap or old carpet in its place? Then place an inch board on top of burlaps, and set another hive on top of inch board.

Galena, Ill., Oct. 23, 1888. HALLETT & SON.

[Upward ventilation for cellar wintering is not considered necessary by the majority of those who winter indoors. By some it is even regarded as a detriment, although opinions are somewhat various on this subject. For cellar wintering we would advise you to close the top of the hive as tight as possible, and leave either a very wide entrance or else lift the hive up an inch or so above the bottom-board. See Doolittle's article on the subject in the Nov. 1st issue.]

PROXIMITY TO THE SALT WATER OF THE OCEAN NOT DETRIMENTAL TO BEES.

After an experience of over five years in keeping bees close to salt water, I am of the opinion that the article on page 800, Oct. No. of GLEANINGS, is without foundation in fact, and the tone of the entire article is contrary to reason or precedent. During a period of drouth, bees prefer fresh water to salt, and very seldom are they seen on the margins of salt water unless the surface of the soil is saturated with fresh water from a well or surface vein. JOHN Y. DETWILER.

New Smyrna, Florida.

PAPER RECEPTACLES—A SUGGESTION.

I would suggest to Mr. Heddon, Jr., that he saturate the paper with beeswax. This can be readily done with a laundry iron heated to a little below the scorching point. Place the paper upon a table and melt a little of the wax at a time, ironing it in. I prepare my hive-covers of cotton cloth in this way for winter use. A. S. MARTIN.

Roanoke, Va., Oct. 16, 1888.

HANDLING MANURE TO KILL SEEDS.

I should like to know whether handling a pile of manure two or three times will kill clover seed therein, or whether there is any other method of killing it. G. F. AYRES.

Atherton, Ind., July 4, 1888.

[It has been repeatedly stated, that if manure is made to ferment so as to warm up to about 150° it will kill all seeds of any kind. The manure used by us is usually handled in this way—at least that from our own stables; but that which we buy from the livery stables has made us a great deal of trouble, as you may remember.]

TWO QUEENS IN ONE HIVE, BUT SEPARATED BY A QUEEN-EXCLUDING HONEY-BOARD.

I placed two young swarms of bees in two Simplicity bodies, one on top of the other, with a queen-excluding honey-board between them. Both queens lived and did well for about three weeks, at the end of which time I took away one of them and gave her to another hive. I shall not do that again, though, I think, as it gave them too many bees, and they swarmed after a while. THOS. J. ELWICK.

Decorah, Ia., Oct. 19, 1888.

BEES AND QUEENS BY THE POUND.

Herewith I report sales of bees and queens from the Tar-Heel apiaries for the season of 1888: 6 selected breeding queens, American Albino Italians, $30.00; 101 warranted queens; 67¼ lbs. of bees; 10 "Good" tested queens; 5 frames of brood; $249.25. Total sales, $279.25. Nearly every purchaser called for American Albino Italians; very few golden Italians were sold. ABBOTT L. SWINSON.

Goldsboro, N. C., Oct. 21, 1888.

278 BUSHELS OF JAPANESE BUCKWHEAT SEED FROM 2 LBS. OF SEED IN TWO SEASONS.

One year ago last spring I bought of you 2 lbs. of Japanese buckwheat, which I sowed July 5, 1887, from which I harvested 8 bushels and one peck of good buckwheat. On July 3d of this year, I sowed 4 bushels of it on 6½ acres of ground. It promised to be a big yield, but the frost of September 6 and 7 cut it short. I cut it right away after the frost, and set it up. I thrashed it Oct. 11, and got 278 bushels of good clean buckwheat. JOHN KENTCH.

Tioga, Pa., Oct. 24, 1888.

A SUGGESTION REGARDING ANDREWS' SCALE FOR WEIGHING BEES AND BEE-LOADS.

I noticed the little contrivance for weighing bees, bee-loads, etc. A very small vial, long and slim, such as pills are sold in, and weighted with fine shot, gives, I think, a steadier balance than a cork. I always use glass fruit-jars for feeding. I always have plenty of spare screw-tops. Knock out the porcelain, and perforate it with just the number and size of holes you want. G. E. HAILES.

Lytle, Texas, Oct. 25, 1888.

[Your feeder is essentially what is called the pepperbox feeder. It answers a very excellent purpurpose. The idea is not new, however.]

MOVING BEES FROM INDIANA TO WASHINGTON TERRITORY.

Can bees be safely shipped from here to Washington Territory?

Would it pay to take them so far if you were moving out there, or would it be cheaper to buy there? D. ZEHNER.

Ilion, Ind., Sept. 25, 1888.

[Friend Z., if you accompany the bees you can ship them to Washington Territory, probably, but if you can get a fair price for them near you I would by all means advise you to sell them and then purchase one or more stocks when you get to your new locality. It is a difficult matter to ship bees from Ohio or Indiana to Washington Territory.]

HOW TO CONVERT A POUND OR SO OF WAX INTO WAX SHEETS.

Take a pound or less of wax, if no more is wanted; fill the dipping-can with water, and heat it to melt the wax. The wax need not be more than ¼ to ½ inch thick on the surface of the water. Regulate the temperature to suit, and you are ready to dip. I get as thin sheets of wax in this way as it is possible to make. G. W. COVER.

Downieville, Cal., July 26, 1888.

[Your plan has been given before, and it works satisfactorily. But there are few who would care to melt such a small quantity at a time.]

PETRIFIED HONEY-COMB, OR A FOSSIL.

When we were picking up stones from the meadow this spring we found one that looks like honey-comb. Every one who sees it calls it petrified honey. Did you ever hear of honey petrifying? It is quite a curiosity. GEORGE G. GREEN.

Lyons, O., Sept. 14, 1888.

[Friend G., if you will turn to page 157 of Prof. Cook's Manual, 15th thousand, you will see that what you describe is illustrated and described very fully. The author says: "It is a very common fossil, found in many parts of the Eastern and Northern States, and is, from its appearance, often called 'petrified honey-comb.'"]

COMBS MOLDY AND SOUR; WILL THEY DO FOR WINTER FOOD?

Will it do to feed bees the honey from combs that are moldy or soured a little? I have some combs in a hive where bees died last winter, that are moldy, and I don't know but sour.

J. P. JAMES.

Tekamah, Nebraska, Sept. 20, 1888.

[Friend J., it will do to feed the bees with honey contained in moldy or soured combs, providing you give a good strong colony one or two combs at a time during warm weather, when they can fly freely. If the colony has sufficient bees, and there is no honey to be had in the fields, they will clean up the honey and clean up the comb in a very few hours, in a way that is surprising and astonishing to any one who has never seen them do it. I would not, however, think of giving them such combs late in the fall. I would not give them to any *weak* colony or nucleus.]

THE CROSSING OF VEGETABLES, ETC., BY BEES.

Does the fertilization of bees by pollen upon vegetables, such as corn, squashes, etc., show the result the first or second year? MRS. LOREN LAWRENCE.

Wayland, N. Y., Oct. 6, 1888.

[My friend, the *seeds* of any plants will be changed the first year by the visits of the bees; therefore corn and other vegetables, where the seed is used for food, will be affected more or less. Where sweet corn is planted near yellow corn, you will notice the yellow kernels mixed in the sweet corn. The case is different, however, with squashes and most other garden vegetables. Their seeds will be injured for use another season, but the squash, cucumber, or melon, will not be any different. It is just as good for food, but you should not save the seed to plant. It is for this reason that most seeds should be grown quite a distance away, say a mile or more, from any other of the same family.]

LATE EGG-LAYING; PUTTING BEES IN A CELLAR OR ROOM, ETC.

1. Do queens lay eggs and make brood at this time of year?

2. Can I with safety winter bees in a room in my house, in Simplicity hives? Do I want the room darkened, or let them have all the light I can?

3. What price should I pay for bees in the old box hive, say swarms the size of a 4 to 6 quart pail?

Arden, N. Y., Oct. 10, 1888. J. G. EARL.

[1. In places about this locality, most queens have ceased laying about the middle of October. During the latter part of September and all of October we find very few eggs, if any, in any of our colonies.

2. It is not advisable to winter bees in an upper room in a house. Better put them in a cellar. It is preferable to have the repository darkened.

3. It is a difficult matter to say what would be a fair price for bees in box hives. In our locality, even if we wanted them, we would not pay more than $3.00 on an average, in the spring of the year.]

OUR QUESTION-BOX,

With Replies from our best Authorities on Bees.

All queries sent in for this department should be briefly stated, and free from any possible ambiguity. The question or questions should be written upon a separate slip of paper, and marked, "For Our Question-Box."

QUESTION 88.—*When, in your locality, if you winter indoors, have you found it advisable to carry the bees into the cellar or other repository?*

I winter out of doors. JAMES A. GREEN.

About the first of November. G. M. DOOLITTLE.

Middle to last of November. P. H. ELWOOD.

My experience in indoor wintering is limited. O. O. POPPLETON.

From the first to the tenth of November. DR. A. B. MASON.

Last of November or beginning of December. DADANT & SON.

We let our bees stand on their summer stands. PAUL L. VIALLON.

We winter outdoors on their summer stands. E. FRANCE.

From the first to the middle of November. L. C. ROOT.

I don't know from experience. I winter outdoors only. CHAS. F. MUTH.

As near the 15th of November as the weather will admit. H. R. BOARDMAN.

I am in favor of putting the bees in early, and taking them out late. JAMES HEDDON.

Not until steady cold weather sets in, usually between the 15th of October and the 15th of November. GEO. GRIMM.

About Dec. 1st, and sometimes a little later. While "Indian summer" lasts, I think my bees are better off on their summer stands. MRS. L HARRISON.

I have taken them in at different times in November, and I never thought they were taken in too early. Possibly it might be better to take them in late in October, if the weather is cold. C. C. MILLER.

About the 20th of November. I think, if one has a thoroughly good cellar, even the first of November is safe, and occasionally a year it is none too early, as the severe cold comes prematurely. Such a winter was that of 1880. A. J. COOK.

I have begun to experiment on a new theory of wintering, which I will give. During the first of the winter, bees are very quiet, and use only about one-third of an ounce of honey a day per hive. Let them stay out of doors during pretty much the whole of this period. Just before the time when they would naturally begin to get astir, and begin to breed, bring them into the cellar, and the unaccustomed mildness and darkness will keep them quiet for another long period, thus securing the best wintering and the least consumption of honey. I tried only one colony last winter. The thing seemed to work according to the theory, and they came through in very excellent condition. They were put in January 21st and taken out April 25th, and had no brood when taken out. E. E. HASTY.

At the Columbus convention, the testimony seemed to be mainly in favor of putting the bees in early, say some time in October, and also of taking them out late, say in April, or, in some localities pretty well north, even as late as May. I suppose, however, a good deal would depend upon the cellar in which they were placed. We sometimes have quite warm weather during the last of October and first of November; and when we wintered bees in a sawdust-packed room above ground, I have known the weather to be so warm, even in the latter part of November, that it was almost an impossibility to keep the bees in their hives. A good cellar well down in the ground can be kept much cooler than any wintering repository above ground; and with such a cellar there will generally be but little trouble in putting bees in, almost any time in October. I suppose it is well known, that, in our locality, we have decided against cellar wintering, for the reason that warm spells are so likely to occur during any one of the winter months. Our success outdoors ought to settle the matter, so far as loss is concerned. It is, however, pretty well decided that we might save a good many pounds of stores per colony by cellar wintering, providing, of course, we could winter as safely in the cellar as we do in our chaff hives on summer stands.

QUESTION 89.—*When, in your locality, should bees wintered on their summer stands, packed in chaff, receive their final attentions before winter?*

In October. L. C. ROOT.

Nov. 1st to 15th. MRS. L. HARRISON.

Nov. 1st to 15th. DADANT & SON.

In September. DR. A. B. MASON.

As early as possible. P. H. ELWOOD.

When all honey-gathering has stopped. GEO. GRIMM.

No packing of any kind is required in this locality. PAUL L VIALLON.

At any time after we have a hard frost, up to the time when we get our first snows. E. FRANCE.

Just as soon as the surplus apartment is removed; the quicker the better. JAMES HEDDON.

If you want a guess from one without experience, I should say the middle of October or earlier.
C. C. MILLER.

As soon after the last honey-flow as possible. I should like to have all my bees ready for winter by Oct. 15th. JAMES A. GREEN.

Just as soon as it can possibly be done after the fall honey-flow ceases, the earlier the better; it can not be done too early. O. O. POPPLETON.

The last half of September and first half of October is the time I generally do the last work with my bees, except setting them in the cellar.
G. M. DOOLITTLE.

I think all preparation should be made before the bees have become dormant. I am opposed to disturbing them much in cold weather.
H. R. BOARDMAN.

My own mind is not settled on this point, and ranges between very early (when the sections are taken off) and very late, even as late as the first of February. E. E. HASTY.

Bees need no chaff packing in my locality, but a dry habitation and plenty of stores. The latter part of September is the time when our bees should be prepared for winter. CHAS. F. MUTH.

As soon after frost comes as possible. The extra packing will be valuable on cold nights, and, if feeding is desirable, or is to be practiced, the sooner the better after the harvest is ended in September.
A. J. COOK.

In this part of California I think it best to give the final overhauling just before they cease breeding, which usually stops the last of September or first of October. Queenlessness or defective queens can still be readily detected. R. WILKIN.

QUESTION 90. *Have you found it profitable or necessary to make examination of colonies on summer stands during the winter, when an occasional fine day permits? In other words, do you think any harm results to a colony from disturbing their winter nest?*

No. Let them alone. MRS. L. HARRISON.

No. Bees should not be disturbed.
P. H. ELWOOD.

1. I don't winter on summer stands. 2. Yes.
DR. A. B. MASON.

No harm if the weather is warm enough for them to fly. DADANT & SON.

I don't think it is either profitable or necessary, if all have been properly attended to.
PAUL L. VIALLON.

I don't believe it does any great harm, but my experience is not recent. C. C. MILLER.

If properly arranged and protected, it is preferable to leave them undisturbed. L. C. ROOT.

I think it does no harm to examine the bees when the weather is so warm as to induce free flight.
A. J. COOK.

Yes, profitable in determining the general condition of the apiary, to examine one or two colonies.
H. R. BOARDMAN.

Harm or no harm, I should consider it time wasted to be opening and examining bees in winter, as a rule. JAMES HEDDON.

No harm whatever can result from examining our colonies during warm winter days, but we can benefit them greatly. CHAS. F. MUTH.

Much depends upon the weather. On the whole, I am of the opinion that the less they are disturbed the better for them. GEO. GRIMM.

I have been in the habit of examining my bees very freely whenever I took a notion; but little by little I find myself drifting to the conclusion that I have often injured them by so doing.
E. E. HASTY.

It is seldom necessary, and usually very unprofitable, to disturb bees during the winter. I have examined them at such times, without apparent injury; but as a rule it is unadvisable, especially for a beginner. JAMES A. GREEN.

I know that I have had bees kill their queen when the hive was opened in the winter; and otherwise there are disadvantages, so I think the chances for good are to let them alone. However, I never could resist the temptation to look into them. R. WILKIN.

I am not certain that I have ever known of bees being injured by being disturbed occasionally in winter, therefore I look at mine if I think there is any thing needs doing to them, and often do so from mere curiosity, with no bad results, in my opinion. G. M. DOOLITTLE.

No. I have found it neither profitable nor necessary, nor have I ever noticed that such examination ever did much harm. If there is danger that colonies may be short of stores, such examination as will determine whether such is the case or not may be necessary, especially if you have on hand sealed honey to feed such as may be short.
O. O. POPPLETON.

In summer prepare for winter. We give our bees time to store basswood honey to winter on, then examine in the fall, in September, to see if they have plenty. Feed if necessary, then be sure they have enough, then there is no use of looking into them until warm days in April. Still, I know bees can be examined when there are warm days in winter, and winter well after; but the less we disturb bees in winter, the better. E. FRANCE.

Although I have at different times decided that, the less bees were disturbed during the winter months, the better, I have about as many times decided that they could be handled without *any* injury when the weather was so warm as to enable them to fly *freely*. There may be an exception to this, however. After bees have been shut up for a long time, and start out to have a good cleansing flight, if you pull the hive to pieces before they have had this flight, and settled down, I have good reason to think it may induce swarming out. At one time we used to avail ourselves of every warm spell in the middle of winter to overhaul the hives, sweep out dead bees, move the combs containing stores near to clusters, etc. But one winter, when the weather changed before we got quite through, those that did not have any "house-cleaning" in January did decidedly the best, and some of them swarmed out just after we overhauled them, while none of those that were untouched swarmed out or acted badly.

JUVENILE DEPARTMENT.

Every boy or girl, under 15 years of age, who writes a letter for this department, CONTAINING SOME VALUABLE FACT, NOT GENERALLY KNOWN, ON BEES OR OTHER MATTERS, will receive one of David Cook's excellent five-cent Sunday-school books. Many of these books contain the same matter that you find in Sunday-school books costing from $1.00 to $1.50. If you have had one or more books, give us the names that we may not send the same twice. We have now in stock six different books, as follows; viz.: Sheer Off, Silver Keys, The Giant-Killer; or, The Roby Family, Rescued from Egypt, Pilgrim's Progress, and Ten Nights in a Bar-Room. We have also Our Homes, Part I., and Our Homes, Part II. Besides the above books, you may have a photograph of our old house apiary, and a photograph of our own apiary, both taken a great many years ago. In the former is a picture of Novice, Blue Eyes, and Caddy, and a glimpse of Ernest. We have also some pretty little colored pictures of birds, fruits, flowers, etc., suitable for framing. You can have your choice of any one of the above pictures or books for every letter that gives us some valuable piece of information.

MONDAY MORNING, NOV. 12, AN HOUR BEFORE TRAIN TIME.

WELL, little folks, and old ones too, the time has come for me to start for California. Yesterday afternoon, at dinner time, Huber's place at the family board was vacant. When I inquired about him, his mother said he was out in the woodshed weeping bitterly. Further inquiry revealed the fact that it was because his papa was going away for so long a time. Of course, I tried to quiet his grief, but it all seemed to be of no avail. The more we talked, the harder he cried, until all of a sudden a plan occurred to me. Said I:

"Huber, if you will stop crying, and be a brave boy, I will tell you what I will do. I will try very hard to send you a little letter every day."

A minute more, and another idea opened up; namely, these little letters to Huber shall be published for the benefit of the juveniles. And now, little friends, and old ones too, you see Uncle Amos is committed to the task of writing notes of travel during his long trip, adapted to the comprehension of a boy between five and six years old. May God help me to stand side by side with these little boys and girls, and tell them of the great wide world, wherever I shall go.

When I told the boys in my Sunday-school class yesterday that I was going to be absent for five or six weeks, but that I hoped they would be regular in attendance, even though they had some other teacher, one of them suggested that he guessed they would take a vacation too. And it occurred to me that I might insure their attendance by promising them some notes of travel. With such a promise they all agreed to be on hand promptly. Now, isn't there a providence in this? I am under bonds to furnish facts of interest for a class of boys between five and six, and another class between twelve and fifteen. Yes, and may the Lord be praised, I am under bonds, also, to collect and give items of interest to those older boys and girls—those ranging from fifteen to fifty—yes, perhaps even 75 or even more; for I know of one dear friend who will watch more anxiously, perhaps, than any other, unless it is Huber, for words from *her* boy; and she is, if I remember correctly, within a year or two of being 80 years old. Now, may God help me in this my longest absence from home of any in 25 or 30 years; and may he help me to go, not for selfish purposes or selfish interests, but for the sake of those mentioned above; and may I have grace to work for *Jesus' sake*.

NOTES BY THE WAY.

Dayton, O., Nov. 12, 2:20 P. M. The farming country between Springfield and Dayton is beautiful, and the view of the bright-green fields of wheat, as it meets the eye under the rays of the declining sun, is to me a beautiful sight. No city lawn ever gave back a brighter and purer reflection; and yet I fear that even now, *while I write*, men are gambling in wheat. It seems as if this beautiful sight should be a rebuke to them.

The Miami River and the Miami Valley form a most beautiful scene to the westward. The recent heavy rains make the landscape look more like May than November. I can not remember that I have ever seen any farming land *anywhere* that equals in apparent fertility the valley of Southern Ohio. I am told this land is worth from $150 to $175 per acre.

Cincinnati, O., 6:30 P. M.

To Huber:—Papa is in a great city. It is blazing with electric lights, and the houses are away up high. The cable cars are chasing each other like every thing, without any horses at all to draw them. In the middle of a great lot of beautiful stores is a pretty fountain. The water just pours and splashes all over it, and spatters into a great big basin. A man sits on a big turtle's back, and squeezes the turtle's head, and that makes the water run out of the turtle's head all the time. The turtle and man are all made of stone, and so lots of people come and drink the water. There is also a beautiful woman, made of stone, and she holds her little boy's hand while he reaches out and puts *his* hand in the water. The boy makes papa think of his own dear boy at home, and he wonders if Huber is not now remembering papa in his little prayer, for it is almost Huber's bedtime now, pretty near time for the train to start again. Papa thinks, "God bless my boy, and all the other little boys and girls who read this."

Continued in Dec. 1st issue.

BRINGING DOWN A SWARM BY SHOWERING THEM WITH SAND.

This is the first time I have written to you. My papa has six swarms of bees. I will try to tell you how he got them. One day when he was working in the field he thought he heard something buzzing. He looked around and saw a swarm of bees flying around a little oak-tree. He threw some sand among them. They then commenced settling on his hat. He stooped down in the grass, and the bees settled on a willow bush. We had 130 pounds of honey and three swarms of bees the same year. Last year he had but three pounds. Papa put seven swarms of bees into the cellar last fall, and lost five. He had two this spring; they have swarmed four times. He says they have made more honey now than any time last year. There is lots of buckwheat around here this year. ERNEST E. KNIGHT.

Elsie, Mich.

Very good, friend Ernest; and so your papa thinks the sand induced the bees to cluster. But it is a little funny that they should select your papa's hat in preference to a nice tree.

HOW QUINCY HELPS.

I have a great desire to learn something about bees. Pa bought two colonies last fall, and he transferred them this spring. He has had one swarm, and we hived them without any trouble. I put on my bee-cap and hold the smoker for pa while he handles them. QUINCY FRASER.

Perdue, Tenn.

HOW FANNIE'S MAMMA HIVED A SWARM.

I got my right hand in a cutting-box, and got the large finger cut very badly. I could not write any sooner. Mamma had to hive our bees when papa was away. One day she hived two that came out. One went up high on a tree. Mamma got the hive ready in the shade, then she got the ladder and stood it up to go up to them. She smoked them well and shook them into a large pan, and carried them to the hive. FANNIE STYER, age 8.

Medway, Ohio.

VIOLET, AND HOW SHE HELPS HER PAPA.

When pa feeds his bees with sugar he takes the water he washes cappings in to dissolve the sugar, and boils it, so it will not grain. But he didn't feed this year, because the bees had enough to winter on. I hived a swarm of bees this year before I was 10 years old, and pa gave me half a dollar because it was the first one I ever hived. I work for him more since my brother died. VIOLET FOWLS.

Oberlin, Ohio.

Yes, little Violet, it was worth half a dollar, because, after you hived the first swarm, your papa then knew you could hive more swarms. We hope other papas will see it as your papa did.

RESCUING FLOATING SWARMS—A NICE LETTER.

We had two very bad seasons, and papa was compelled to be away at work. In spite of all we could do, our hives dwindled down to 9 from 22. With increase this season we got up to 15 again. A week ago last Saturday it rained all night. Such a rain we have not had for years; and as we lay in bed listening to it we were delighted beyond every thing to think what a deal of good it would do, and how our water-holes and ponds would be filled once more. As soon as we got up in the morning we ran out to see whether the big pond was full, and, lo! it was full! It reached up to the little one, so that you could not tell where the one began and the other ended. The garden was all under water, and the hives floating about, some on their sides and some upside down. We had to wade in after them, and we did not stop to change our clothes or run after the smoker. We got them all out on dry ground, and five is all that will be able to pull through. As it kept on raining, we could not tell what to do to get them dry, though we did our best to make them comfortable. We don't keep any whisky in the house, or we might have made them a hot toddy. This is sad news to have to write, to tell pa at San Marcos. We had taken only 25 lbs. of honey, as we were anxious to get all the increase we could. The first pollen our bees gathered was from the algeritas, or Mexican currant, in January. It is very nearly white. The leaves are just like holly; the berries are very nice, red, very thick on the twigs, but not bunched like currants. When cooked there is no flesh, but plenty of juice, skin, and stones. When made into wine it bursts the bottles. There is a large poppy growing here. We thought it was a thistle for a long time, though it has a poppy-looking flower. We noticed the heads; then when we cut it, milk came out as from the poppy at home. It is generally white-flowered; but where it grows on sandy soil, a purplish red prevails.

Hondo City, Tex., May 13, 1888. FRED. HAILES.

Thank you, friend Freddie. Your letter is real interesting, and we are very sorry that the date of publication has been delayed so long. We thought we had picked out all the best letters, but it seems we had not. We are very glad to know that you have such good helpers in your father's absence. You must have had quite an experience in gathering together the floating hives.

MRS. HARRISON'S LETTER.

SHE TELLS WHY SHE DID NOT ATTEND THE COLUMBUS CONVENTION.

WELL, children, you have not heard from me in a long time. I believe that I've been dull. You've heard, haven't you, that "all work and no play makes Jack a dull boy?" Why should that not apply to a girl as well as to Jack, or to a man or woman? You have heard the story of Sir Charles Napier's dog, haven't you? When he was a small boy he tied a rope around his dog's neck, and made him pull him across the river. The dog didn't enjoy this very much, for it was hard work; but he didn't want his master to drown; so ever afterward, when he saw him go near the water he would catch his clothes and hold him.

Last year, when I came home from the bee-convention at Chicago, I was very sick. Now, my folks don't enjoy the luxury of a sick woman very much; they like to have a well one around a good deal better—especially if she is a good cook. So they had to take a turn at the spit, make tea and toast, and be told it was poor stuff. So this year they were like Sir Napier's dog—they hadn't forgotten it; and when I began to talk of going to Columbus, Ohio, to the convention, they said, "Oh! you are not able to go that long journey; you might get sick." And, don't you think? they made *me* believe it.

You see, I got very tired getting ready; and if I went I had to travel all night. I was so tired that I felt sick all over; and after I had had a night's rest I was real chipper, and sorry that I did not go. Another time, I will not get ready—I'll go. In a few days I was rested, and took a drive into the country. I didn't get ready this time, but went. Didn't have a driver? oh, no! that would spoil the fun. It always seems as though the strength of the horse ran along the lines to me as I drive. Lucy, the five-year-old, was my company.

Do you know that horses can talk? not as we do, with our tongues, but express themselves. We came to a steep hill, and our horse, whose name is Bird, stopped and looked back at me, saying, "I can't go up that hill—it's too steep—and haul a fat woman like you." So I got out, and Lucy too, and said, "Bird, go up the hill." When she was half way up she stopped to rest; and when she had got over the steepest part she looked back, saying, "You can get in now; I can pull you the rest of the way," and we did. MRS. L. HARRISON.

Peoria, Ill.

My good friend, you have fallen into a way of meeting troubles before you come to them, I fear. I believe in being prepared for every event in life; but worrying about imaginary troubles is no preparation for any thing. I have myself a good many times started off without being ready, as you term it, and found that nothing very disastrous happened after all. I have discovered, Mrs. H., that horses can talk as well as ourselves, and I greatly delight in talking with them, and in getting acquainted, especially where they are inclined to be unsociable. Some horses are cross and crusty, and resent any advances to being neighborly. I often think, however, that the poor fellows have got soured by meeting so many cross and ill-tempered people. I have long had a sort of a hobby, however, that we might heap coals of fire on their heads, and in time soften a bad disposition. I have never had time to work it out very thoroughly, however.

OUR HOMES.

God hath chosen the weak things of the world to confound the things which are mighty.—I. COR. 1:27.

SOMETHING over two thousand years ago, a poor commonplace individual who had, perhaps, no particular merit, unless it was that he trusted in God, began wondering whether something could not be done to gather together the scattered remnants of his people, that they might build up the walls of Jerusalem, and again serve God as they did in times past. On account of wickedness, disobedience, and a lack of faith, God had permitted them to fall into the hands of their enemies until they had been so crushed and scattered abroad in captivity that the world hardly knew such a people ever existed. This commonplace individual, however, kept right on thinking, and began praying that God would in some manner open a way to the re-establishment of his kingdom among his chosen people. Nehemiah had no power nor money nor influence anywhere. He was, in fact, one of the humblest servants, for his position was to wait upon the king, and to bring him his wine when he wished for it. Notwithstanding all these adverse circumstances, he had faith to pray to the "great God of heaven," and to meditate on the matter. In olden times kings were in the habit of choosing for their attendants men of mirth and jovial spirits. Perhaps Nehemiah had ordinarily been of this class, for we are told that the king finally noticed his sad looks, and perhaps, greatly to Nehemiah's surprise, very kindly questioned his humble waiter, asking him why one in apparent good health should look so sad. I do not know whether Nehemiah recognized in this any answer to his prayers or not; but he frankly told the king his feelings; and as the queen was present he explained to her, also, the condition of his people. All faith, spirit, all enterprise and energy, had departed from the whole race. They were clear down, and their condition was so utterly hopeless, they had fallen into a kind of apathy, and just *lived*, as some folks do nowadays—lived, without a solitary ray of the glad sunshine of God's love, and no glimpse of his plans, and no hope to brighten a single hour of the days as they came and went—without purposes or end or aim. I have not time to give you the full particulars of the story here, but you can find it in the book of Nehemiah, if you wish to read it. I presume it was a wonderfully strange thing indeed for a great king to listen to the wants and needs of his cup-bearer, and to give him a long vacation, with men and money besides, to go down and see what he could do toward building up the tumble-down walls, and putting up new gates with massive locks and hinges to keep out the warlike and unscrupulous wild Arabians round about them.

But notwithstanding the king's kind aid, Nehemiah did not have easy and plain sailing, by any means. He was a man of good sound sense, even if he was poor and ignorant. He knew pretty well that the idle apathy and indifference, so long as Jerusalem lay silent and in ruins, would change in a moment as soon as any one started out to build up God's kingdom amid the deserted ruins. In fact, the first night he got on the ground he went out by himself to view the ruins, during the night time, so as not to excite suspicion. He rode on his pony as far as the pony could carry him, and then he traveled on foot in order to get, before morning, a view of the immense task that lay before him. Most men would have given it up in despair, and gone back home content to die, because the project seemed so utterly impossible. Not so with Nehemiah. He visited the remnants of his people, and, after much pains and hard labor, awakened in their hearts a sort of dim faith and energy to go at the work. The Arabians very soon got an inkling, and commenced to poke fun at him, and to ridicule the project. They laughed him to scorn, and even made sport. "What! do these feeble Jews think they can build up the walls of Jerusalem?" Then the other took it up, and declared that, if a *fox* should chance to run over any wall *they* could build, it would tumble down forthwith. Nehemiah decided, however, to get along with it the best way he could. He made them no reply, but stuck to his work. When they found that jeers and talk did not hinder the resolute Hebrews, they began meddling with their work, and trying to pick a quarrel with them, so that the laborers were obliged to lay down their tools and take up their arms alternately, and even keep a standing watch by night, not forgetting to pray continually to God to bless their feeble efforts in laboring for the upbuilding of his cause.

The more Nehemiah prospered, however, the more determined his enemies seemed to be to put a stop to the work. They even laid plans to kill him. Then they pretended to be his friend. They told him that slanderous reports were started that would do great damage. He was sharp enough, however, to be slow to accept their sudden overtures of friendship. Then they went and bribed one of Nehemiah's own high-priests, who advised him to retire to the temple and lock the doors, to save his life. Nehemiah, however, saw through *this* scheme, and he denounced the traitor to his face. He triumphed over all obstacles, and builded the wall in a little less than two months—at least, he made it strong enough to keep out the enemy. Then he had quite a battle to fight with his own people, to get them to observe the Sabbath. Nehemiah was a man of peace when it was possible to observe God's holy laws in a peaceful way; but when the Sabbath-breakers still hung around the gates, trying to start trade and traffic on the holy day, he gave them to understand he was not only on the side of right, but that he was not afraid. He says to them, "Why lodge ye about the wall? If ye do so again, I will lay hands on you." And we are told they cleared out then and came no more. His troubles did not end speedily, however. The Hebrew youth would persist in intermarrying with the good-looking heathen damsels, and alliances were formed with the very men who plotted to take Nehemiah's life. Our humble friend was beginning now to be quite a hero, however, and he cleared out the rebels, man and wife both, and gave them to understand that those who shared in the upbuilding of Jerusalem must be either on one side or the other. You see, friends, that, even in olden time, *one* with God on his side was a host.

Let me now tell you a little story of modern times. I have been requested not to give the names, so I think I will try to tell my story without mentioning any. About fifteen years ago a poor invalid who lived out west began to meditate, on a sick-bed, as to how she might do more for the cause of Christ Jesus, especially in the matter of assisting the work in foreign lands. She could use her pen while reclining on her bed, and she was also able, when her disease troubled her least, to do some kinds of handwork with the needle, and other like occupations; but she longed to do more than these avenues afforded. She became interested in bee-keeping; and although one might smile to think of a person keeping bees who could not sit up at all, she could not give the matter up. Her first experience was a good deal disheartening. It was money out of pocket, with no income. Almost every thing she did seemed to be the wrong thing. She borrowed some books, and some kind friend lent her papers; but one said one thing, and the other something else; and what could she do to make the bees prosper where there were so many conflicting directions? In November, 1873, she wrote me a letter, telling me of her troubles, and asking me to tell her if they had been doing the right thing or not with the few bees they then had. I gave her, perhaps, more encouragement than she had ever received before. I told her that what she had done was exactly right, and that I felt pretty sure she would be rewarded in due time. Quite a correspondence sprang up, and I soon became quite well acquainted, and a good deal interested. From the outset I was surprised to find such faith and energy, such a continual studying and devising plans and means from one who was, as the world would declare, completely shut off or cut off from any such projects as were continually welling up in her heart. I am sorry to say that I was not a Christian at the time. Her faith in God and faith in prayer meant nothing particularly to me. When, however, I came out decidedly on the Lord's side, there was a new bond of friendship between us. Her talks about mission work before this had been dull and uninteresting to me; but now they were to me glimpses of one of God's divine plans and purposes.

As I had predicted, her bees came out in good condition; and when the weather permitted them to fly in the spring, she became so enthusiastic in regard to this wonderful new industry, that reports from her husband and the other kind friends who waited on her did not satisfy her. The longing to be out in the open air among them became an inspiration, and she crawled outdoors rather than walked out. As no bad results followed, she got out again and again. The hum of the bees, God's bright sunshine, and pure air, did her good, as I felt sure they would, and the excitement of using her mind as well as muscles, instead of fatiguing her proved to be a stimulus. Little by little she gained strength to sit up and open the hives. When extracting time came, she worked the extractor while lying on a lounge. She even made comb foundation, and scraped the propolis from the honey-boxes. God answered her prayers, and gave her, as he usually does, even *more* than she asked for. She asked for money with which to assist missionaries; and in answer to this prayer, came, by slow degrees, a degree of health she had not known for years. Doubtless many of you will take up the thread of my story without any further help. Did she get proud of her success? No, she gave Christ Jesus all the glory and praise. Did she buy fine things—horses and carriage and such like, that she might ride at her ease, and outshine her neighbors? God forbid! I do not know any thing about the horses and carriage. Perhaps she has one with which to go to church when she is able; but I am *quite certain* she has never thought of *outshining anybody*.

Let me digress a little. Years ago a young man in one of our jails expressed a wish that the Lord would send him $500. When I asked him what he would do with it, his answer exhibited such a bad state of heart that God *could not* consistently answer the prayer, for it would not be a prayer at all. By some queer freak, the nature of which I can not understand, I have for years had dreams every now and then—yes, veritable dreams that come in the night time—of possessing some sort of power that enabled me to go away up in the air, and traverse space. I never had any wings; but it is always accomplished by some "new invention." Over and over again I feel perfectly satisfied—that is, in my dream—that the thing is really practical, and will work when exposed to the light of day. Daylight, however, always reveals the fact that it is "only a *dream*." Well, oftentimes I wake up and speculate as to what use I should make of such a faculty, if it were ever given me. In fact, I have again and again asked myself the question, What would be the result on myself and on "my neighbors," if God should see fit to place in my hands some great invention that would enable me to outstrip our fastest railway trains and ocean steamers? Dear reader, my decision has invariably been, that *no good* could come of it. There is and always has been too much A. I. Root and *too little* of *Christ Jesus* to make it safe to intrust me with any such power. I dreamed *once* that I used the gift as a means of carrying the glad tidings of free salvation to the utmost parts of the earth; but when I awoke I reflected that it was not very probable, for I am not now using my *hands* and *feet* to carry the glad tidings even to my next-door neighbor. I am sorry to acknowledge that the evidences are, that I should not do very much better were I permitted to go to China or Africa this very afternoon. A great many times in my dreams I have seen people stop and gaze at me in wonder as I slid noiselessly over the tree-tops, and past the busy traffic of men. Sometimes they would stop and look quite a while. Scientific men even began to speculate on the explanation of the phenomenon; but the greater part of mankind, after a few minutes, would turn back to their daily occupations, and concluded that it was *my* affair and not *theirs*, even if I did skip half a mile over fences and house-tops at a single stride. Would it be safe for the Almighty to offer *any human being who now lives* or who has lived, the power of performing miracles? Judging others by myself, I do not believe it would. Christ Jesus stands *alone* in this matter. All the arts and powers of Satan were unable to make *him proud* and *overbearing* for *one single moment*.

Now I want to make some extracts from the *Woman's Missionary Advocate* Before doing so, however, I want to say that I rejoice to think there are men and women *both* in this world who can be trusted with large sums of money. Yes, the Lord may pour into their hands thousands of dollars, and it does not hurt them one bit; and the good friend of whom I have been talking is of this class of individuals.

A Story of the Bees, by J. S. Humphrey.

About three years since, there came to my desk the following letter:

Dear Brother in Christ:—Some two years ago we made up our minds that, as soon as we were out of debt, and our business was on a firm basis, we would devote the surplus money to the Lord's work while in our lifetime, rather than lay it up to give when we wanted it no longer. This year our anticipations have been met; therefore find inclosed a check for four hundred dollars, to be used in the interest of the American Board of Commissioners for Foreign Missions, and our prayers go with it.

The letter closes by saying:

We are bee-keepers as well as farmers. We have two hundred and twenty colonies of bees, and you have perhaps seen our honey in the Chicago market.

Very truly yours,
Feb. 3, 1882. Mr. and Mrs. ——— ———.

This practical illustration of a doctrine which I was just then pressing home with such earnestness as I could was both a surprise and a delight. Indeed, only the day before, I had attempted to set forth to a congregation largely made up of families like this one, in moderate circumstances, tokens that we were living in "the latter days," and that God, through his providence, was appealing to us as never before to devote ourselves and our possessions to his work. And I have ventured to predict that a revival was at hand in which a chief feature would be *the consecration of property to the Lord;* a revival in which there would be found men of brains, of experience, of business tact and opportunity, who would as distinctly devote themselves to *making money* for Christ as Moody and Whittle devote themselves to *saving souls* for Christ.

So opportune an example seemed to be a testimony that this teaching was after the mind of the Lord.

I was also greatly touched by the thought—two hundred and twenty colonies of bees gathering honey out of the Lord's flowers for the Lord's missionaries! How could I help saying: "Blessings on the bees? May white clover and all blest honey-bearing flowers bloom abundantly the coming year for the thrifty little workers!"

The following summer was indeed a season of wonders in honey-making. These friends with whom a pleasant correspondence had thus been commenced wrote in August: "We never have had such a honey yield before. It would seem as if the 'windows of heaven' were really opened. We are having such great abundance that we have hardly strength to care for it, or room in which to put it."

As neither this farmer nor his wife is in good health, it is a marvel that they could have done so much. The wife writes: "It has been very hard on Mr. ——— and myself. But our loving Father has helped us daily. Never has a year passed in which we have felt more than this year that we were helped of God in our daily duties. As we have seen the honey flowing in until in our weakness we were almost ready to cry, 'It is enough, Lord!' yet the thought has sustained us that we were fellow-laborers with the dear missionaries in heathen Africa and China; and while our bodies have been taxed to their utmost, our hearts have rejoiced in God our Savior that we have been permitted to suffer and labor for him."

A later letter said: "The yield was about two hundred and sixteen pounds to the hive. One of our best colonies gave three hundred pounds. We have sent *thirty thousand pounds* of this year's honey crop to Chicago, and placed it on the market for sale."

Of the proceeds of that season's labor, after all expenses were paid, one thousand nine hundred and thirty-eight dollars and thirty-two cents found its way into the treasury of the American Board. I have since learned that a still larger amount was given to home mission and church work.

They had not means sufficient to build a barn, and the home which they still occupy was of the humbler sort of farm houses. Their first years were those of struggle and disappointment. The farming did not greatly prosper. But, notwithstanding the increasing weakness of the wife, which left her, much of the time, able to work only with her hands and her busy brain, the Lord was gracious to them, and even through their trials drew them gently, year by year, nearer to himself.

As the products of the farm went but little beyond the necessities of the place, the wife, in her desire to earn money to give, turned her fertile brain and facile hands to various devices. As she could work only in a reclining position, she made wax flowers and stuffed birds, and did hair work. A kind of half-lounge built in the family carriage enabled her to drive alone to neighboring towns, where she exchanged the results of her handicraft for out-of-date hats and soiled ribbons or bits of silk. These hats, trimmed by her deft fingers, to the number of seven or eight hundred, have been sent to Indian and freedmen schools, some of them being given to the needy, and others sold, and the proceeds put into such benevolent work as required money.

There, friends, is missionary work truly. It is not away off beyond the seas, but it is to the Indian boys and girls of our own United States—to a people who have a better right, if any thing, to the broad acres of our country than we have. I am glad to say, that a lot of ladies' hats went from our establishment here in Medina. Just think of our friend riding about on her lounge in the family carriage, in order to do this work for the Master! No wonder she and her good husband felt as if "the windows of heaven" were really open.

For the same purpose they began some years since to keep bees. At the beginning it was not a success. For the first three years they were a source of expense, one of the years costing them seventy-five dollars more than the value of the honey produced. This was another severe disappointment. Had they not honestly entered upon this project to gain more for the Lord's service? And yet he had given no blessing. But he was leading them by a way they knew not. Gradually one after another, under the gentle ministry of the Spirit, the bands of selfishness gave way until they came into the full purpose indicated in the letter with which this account opens—the purpose of giving *all the surplus*, after their honest debts and necessities had been met, to the Lord's work.

Then the prosperity which at an earlier time might have narrowed their hearts began to come in. The debt on their farm disappeared; a barn was built; there was money in hand to enlarge the appliances of the apiaries; and, best of all, there came precious blessings to their souls. Now life and money getting were found to have a divine and delightful significance. "Since our all has been consecrated," they write, "this has seemed like a different world. We feel that God is so good to let us be helpers with him." No covetous farmer in all the land, rising up early, sitting up late, eating the bread of carefulness, *grubbing* that he may get money to buy the next farm when his shiftless neighbor over the fence there shall be obliged to sell out, plans with more care or practices a closer economy than do this thrifty pair, as they give their strength to money-making for the Lord. And why should they not? He works for his own little self; they for the Lord Jesus and a world of suffering humanity.

From this "eighty," worth about six thousand dollars, and from the two apiaries, which may be valued at two thousand dollars more, Mr. and Mrs. ——— have been permitted to give as "the surplus" during the last six years about *seven thousand five hundred dollars.*

The seasons have not all been alike prosperous. One year, the great honey year, they gladly paid into the treasury of the Lord, about four thousand and one hundred dollars. This year, 1884, the surplus will be but little. They write submissively: "The Lord has seen best not to lend us quite so freely as in the past, so we can not give what we do not have, but our hearts go out in longings that can not be uttered for the spread of the gospel to the earth's remotest bounds, and for suffering humanity."

THE POOR INVALID WHO WANTED TO KEEP BEES "FOR CHRIST'S SAKE."

These friends do not confine their benefactions to any one work, but maintain a lively and intelligent interest in all the leading causes of Christ's kingdom, and they seem unusually fruitful in devising little helpful things in their aid. A girl's mission circle is made glad by their purchase of a rag carpet which the little fingers have toilfully sewed. And then this carpet, packed in with such things as make a thanksgiving at both ends of the line, goes to a home missionary in the Indian Territory. Fifty hats are added to be sold for the new church he is attempting to build. Some swarms of bees have also been sent, to aid him in his self-sacrificing work.

With one check came this word: "We should like it to be used for the missions in Africa—poor Africa! Oh that God in his great mercy would *now* pour out upon his people a desire for the salvation of the world! After we get our homes paid for, and are in comfortable circumstances, all we can make after that surely belongs to the Lord. It would only burden us to keep it. But if given back to him it is a source of great happiness ever afterward. It must yield in the conversion of souls more than compound interest. It is between us and our God whether we give or not. But I feel that we are impoverishing our souls to all eternity if we withhold what belongs to him. It is the greatest joy of this earth to labor for him who has done so much for us. But give God—our faithful God—all the praise, and us none, only as feeble instruments in his hands, willing to be and do any thing for the advancement of his kingdom."

I am happy to be able to give you a picture of this good friend who was raised from her bed of sickness through God's blessing, by the work of the honey-bees, and it rejoices my heart to thus end this grand and beautiful story I have been telling—this story so full of comfort, not only to those who are healthy and well, but even those who recline on beds of sickness.

Here is my finishing text :

> Bring ye all the tithes into the storehouse, that there may be meat in my house, and prove me now herewith, saith the Lord of hosts, if I will not open you the windows of heaven, that there shall not be room enough to receive it.—MAL. 3: 10.

P. S.—Just one word more about that gift of which I get glimpses in my dreams. God has not yet seen fit to give it to me; he has, however, in his infinite mercy and goodness, seen fit to grant me a privilege that I had scarcely hoped might ever be mine. To explain what this privilege is, I want to give you a glimpse of a friendly letter.

Mr. Root:—In looking over GLEANINGS of Oct. 1 this evening, I noticed for the first time that you are coming to Southern California soon. Now, I have not an apiary such as I should feel proud in showing you, owing to various causes; but I have a strawberry patch in bearing now that I do think is first class; and as I am but a half-hour's ride from Los Angeles, it might not be unprofitable for you to run out and see our pretty section of country, and I should esteem it a rare favor. If you can come, take the Los Angeles and Glendale railroad. Drop me a line just before, to Verdugo, and I will meet you with a team. Glendale and Verdugo are practically one town, and but 7 miles from the city, and have 5 trains daily each way, over a narrow gauge. I can show you a remarkable water supply and system here, and some noted orange-groves. I hope you will favor me with a call.

GEO. B. WOODBERRY.

Verdugo, Cal., Oct. 24, 1888.

Dear friends, the invitation was accepted; and ere this meets your eyes, I shall, Providence permitting, be speeding my way over the vast expanse that lies between my home here, and the fruit and honey belt of Lower California—not over the tree-tops, as in my dream, but in a manner almost as strange to the children of but a little more than a century ago; and, in the great Father's good time, possibly the glimpse of my dream may be verified to all his followers; for we are told, that "eye hath not seen, nor ear heard, neither hath it entered into the heart of man, the things which God hath prepared for them that love him."

GLEANINGS IN BEE CULTURE.

Published Semi-Monthly.

A. I. ROOT,
EDITOR AND PUBLISHER,
MEDINA, OHIO.

TERMS: $1.00 PER YEAR, POSTPAID.

For Clubbing Rates, See First Page of Reading Matter.

MEDINA, NOV. 15, 1888.

> Seek good and not evil, that ye may live; and so the Lord, the God of hosts, shall be with you, as ye have spoken. AMOS 5: 14.

TAKE a look through our premium-list. It will pay you—see if it doesn't.

WE have just enjoyed a pleasant visit from Mr. T. B. Blow, of England. We will make further mention in next issue.

OUR FRIEND FRANK BENTON.

THE *American Bee Journal* for Nov. 7 publishes a letter from a bee-keeper in New South Wales, complaining that friend Benton received his money, acknowledged the receipt of it, and sent him *one dead queen;* and that, although he has waited for two years and written him four letters, he can not get any further reply. Inasmuch as there are other complaints of a like nature in regard to friend Benton, we feel it our duty to advise sending no more money to him until these matters be straightened up and a satisfactory explanation be given.

"UNSTITCHED AND UNTRIMMED MAGAZINES"

is the caption to an editorial in the *Review* for Oct. 10th. As it echoes our sentiment better than we can express it, we take pleasure in copying it.

> There is not a foreign bee journal that comes to our desk trimmed, and some of them are unstitched. The last number of the *Advance* also came untrimmed. Yes, and there are two leaves in nearly every number of the *C. B. J.* that, for some reason, are uncut. To some this may seem like a small matter for criticism; but to the busy or tired man, who must hunt up needle and thread, and stitch a paper (and he can't do it so neatly as it is done by a professional), then hunt up the shears and haggle off the edges, or use his pocket-knife and leave the edges of the leaves looking like the cutting edge of a fine-tooth saw, to such a man this condition of affairs sometimes assumes sufficient magnitude to induce him to toss the magazine into the drawer unread. The leaving of magazines unstitched and untrimmed is a nuisance for which there is no excuse.

"WHITE PLUME" LETTUCE.

SOME of you may be glad to know just how it is prospering. Well, out of a great lot of plants, I have succeeded in getting just one nice plump head of lettuce, and I am happy to tell you that this head it almost milk-white all over. The extreme ends of the leaves have patches of green on them; but it now becomes quite evident that the goal is not very far off. The main thing now is to get this head of lettuce to send up a seed-stalk, and form seed, before winter or during winter. It has not started to shoot up yet at all. We are going to keep it outdoors until the last possible moment that it can be kept so safely, then we are going to give it the best place in our greenhouse, and secure seeds if possible. The most of the plants shot up to seed before forming a nice head, as I have told you before

"NOTES OF TRAVEL."

YOU will see, by reference to the Juvenile Department of current issue, that the senior editor of this journal, A. I. Root, has taken his departure for California, going by way of New Orleans, for a six weeks' sojourn. He has worked long and hard at his post; and while some of us at home will have to work a little harder, perhaps, in his absence, it is a pleasure to us to think that he has now arrived at that point in life when he can take this change and rest, which he so richly deserves. He will furnish notes of travel by the way, besides telling of that great bee-country — California — a country whose resources seem boundless, and about which we bee-keepers of the East know comparatively little.

ECLIPSE BEETS—OVER 1350 BUSHELS TO THE ACRE.

LAST spring we sowed a little patch of Eclipse beets, intending to pull them for beet greens, and for beets for the wagon as wanted. They were near the turnip-patch, that I have told you of before. The ground was heavily manured with stable manure in the fall, and rye was sown with a drill, guano being used in the drill instead of phosphate. In the spring the rye received another heavy top-dressing of well-rotted stable manure. When it was about knee-high it was plowed under, and the beets were drilled in by hand. The ground occupied was twenty feet wide and eighty feet long. When we commenced to pull them there were 38 good full bushels of beets, and none of them too large for table use either. We started to thin them out at the proper time, but did not get around to it, so half of the patch grew so thick that they crowded each other out of the ground. Estimating 12 bushels used for market (and there were certainly *more* than this), this little patch gave us over 50 bushels, which would be at the rate of 1350 bushels per acre. I am aware of what mangle-wurtzels often do; but is not the above pretty good for table beets, say about the size of good apples?

HOW NOT TO SUCCEED.

RECENTLY, in talking with a bee-keeper from a distant State, I happened to make some inquiries in regard to a bee-keeper near him, who does quite a little in the supply business. It seems he does not get along very well. In a few moments' conversation I gathered the following: This proprietor of the supply factory does not get around until about 9 o'clock in the morning; and even after he gets there he makes it his business individually to go to the postoffice *four times a day*, and on the way there and back he always smokes a big pipe. Now, my friends, these three things, it seems to me, would effectually kill any business in the world. The man who expects to succeed ought to be up before any of his hands have reached the factory—yes, even before the engineer. This latter may be a little too exacting, but he should certainly be on hand before the machinery is started. Secondly, the man who has charge of hands and machinery can not afford to go to the postoffice *himself*, even *once* a day. In regard to the pipe matter, there may be differences of opinion; but I do not believe that anybody would be so bold as to claim that a big pipe and the accompanying tobacco would be conducive to the prosperity of any business. If the above will be the means of setting any young man, just starting into business, to thinking, I shall be very glad.

DADANT'S FOUNDATION FACTORY, WHOLESALE and RETAIL.
See advertisement in another column. 3tfbd

BEES and GARDENING

go well together. Bees fructify the blossoms. The garden fruits and flowering plants furnish the bees with food. The best of all gardening periodicals, THE AMERICAN GARDEN, of New York—a large, handsome, illustrated monthly magazine of fruit, flower, and vegetable culture—in "club" with GLEANINGS for $1.85, or alone for $1.00. Price to be raised on Jan. 1 to $2.00 a year. TWO MONTHS FOR 10 CTS. FOR INTRODUCTION. E. H. LIBBY, 751 Broadway, N. Y.

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HONEY

FOR SALE

CHEAP.

Address

JAMES HEDDON,

DOWACIAC, MICH.

Mention Gleanings. 20tfdb

A RARE CHANCE TO BUY.

Having come in possession of the following apiary and fixtures, I offer it for sale cheap. Ten colonies Italian bees; 75 Langstroth and Simplicity hives; 50 Heddon supers; 300 brood-combs; 200 empty frames; 100 wide frames; extractor, uncapping-can, knife, division boards, etc.; 80 patent caps; also a new octagon bee-house, in sections, for moving; will hold 76 colonies. All above are good as new. Write for prices, and I will please you.

J. C. FRISBEE, SUFFOLK, NANSEMOND CO., VA.
16-14d

APIARIAN SUPPLIES CHEAP.

BASSWOOD V-GROOVE SECTIONS, $2.75 to $3.75 PER M. SHIPPING-CASES VERY LOW.

SEND FOR PRICES.

GOODELL & WOODWORTH MFG. CO.,
3tfdb **ROCK FALLS, ILLINOIS.**

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The BUYERS' GUIDE is issued March and Sept., each year. It is an encyclopedia of useful information for all who purchase the luxuries or the necessities of life. We can clothe you and furnish you with all the necessary and unnecessary appliances to ride, walk, dance, sleep, eat, fish, hunt, work, go to church, or stay at home, and in various sizes, styles and quantities. Just figure out what is required to do all these things COMFORTABLY, and you can make a fair estimate of the value of the BUYERS' GUIDE, which will be sent upon receipt of 10 cents to pay postage,

MONTGOMERY WARD & CO.
111-114 Michigan Avenue, Chicago, Ill.

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DADANT'S FOUNDATION FACTORY, WHOLESALE and RETAIL.
See advertisement in another column.

PRESERVE THIS LIST, AND IF YOU GET MORE THAN ONE PLEASE HAND THE EXTRA ONE TO A NEIGHBOR WHO MAY BE INTERESTED.

GLEANINGS IN BEE CULTURE.

DEVOTED TO BEES, HONEY, & HOME INTERESTS.

Vol. XVI. **SUPPLEMENT TO NOV. 15, 1888.** **No. 22.**

TERMS: $1.00 PER ANNUM, IN ADVANCE; 2 Copies for $1.90; 3 for $2.75; 5 for $4.00; 10 or more, 75 cts. each. Single number, 5 cts. Additions to clubs may be made at club rates. Above are all to be sent to ONE POSTOFFICE.

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PREMIUMS.

Here we are again, with our Third Annual Premium List, grown to twice its size last year. If you examine it carefully you will find some

REMARKABLE OFFERS

For a little exertion on your part in securing subscribers to GLEANINGS. Our subscription-list is larger than ever before, and is still on the increase. We want to reach

10,000 SUBSCRIBERS

By Jan. 1, 1889; but if we do, it will be because our present readers bring the merits of GLEANINGS to the notice of their neighbor bee-keepers, and induce them to subscribe. We are willing to pay you well for this, and that is why we make you the following liberal offers. If you go to work at once, you can offer the new readers something extra, for we will send

GLEANINGS FREE THE REST OF THIS YEAR,

Remaining after the names are received, to new subscribers for 1889. These last numbers of the year will be of especial interest, as A. I. Root, the senior editor, is now on his way to California, and will send NOTES BY THE WAY, and sketches of his visit there. Besides this, we expect to send a special CHRISTMAS SOUVENIR to every reader who receives the Dec. 15th number. This has cost us a good deal, and we think will be appreciated by our many readers. Will you not strive to make the number of readers as large as possible by that time?

BARGAINS FOR CASH.

If you are not interested in securing premiums by obtaining subscribers, I think you will still find it very much to your advantage to look over this supplement carefully, and see the many useful and interesting things we offer, and the very low prices we ask for them. I think that I need say nothing further on this point, but that the prices will speak for themselves.

HOW TO GET PREMIUMS FREE WITHOUT CANVASSING.

As is said elsewhere, the object of offering premiums is to increase the list of subscribers; yet there may be some who can not reach the desired number of names to secure a certain premium, or some may want to secure the premium without securing any names other than his own. To meet these emergencies we make this

SPECIAL ARRANGEMENT.

You may extend your own subscription to four, five, or six years, or more, sending us a dollar for each year, and each year will count as one name toward securing a premium. Take an example: John Jones sends us $6.00 for 6 years' subscription. His journal is marked to expire 6 years from date, Nov. 15, 1894. In addition he is entitled to the premiums, the same as if he had sent in five names. He selects a Ladies' Friend carpet-sweeper, valued at $1.50. For an investment of $6.00, he gets in return $7.50. An extension of subscription of *less* than four years will not permit you to take advantage of this offer.

PREMIUM RULES.

Please read these Rules carefully, and thus avoid misunderstandings.

We believe most of our readers appreciate GLEANINGS enough to continue with us without the extra inducement of premiums. These are offered with a view to increasing our number of readers by the addition of new subscribers. The premiums are intended for those who, by personal effort, secure the subscribers. These persons are almost always those who already read GLEANINGS, and know what it is. We are glad, therefore, to pay you well for your trouble. *No premiums will be given to newsdealers or subscription agents.* 1. Both renewals and new names count toward securing premiums, but we require that AT LEAST HALF the names SHALL BE NEW SUBSCRIBERS. Note also exceptions under different premiums.

2. No name will be counted for premiums unless it is accompanied by $1.00; and in cases of renewals, all arrearages, if any, must be paid up, and $1.00 sent for a year in advance—the advance subscription only, counting for premium.

3. You can close your list of names at any time, and call for the premiuns due; or you can add to the list of names. But—

4. Send along the names as fast as gathered, so that the subscribers may begin to receive the journal at once. No subscriber, under any circumstances, must be received for less than $1.00 per annum.

☞Mark every name or list of names, ***"For Premiums,"*** if so intended, and we will credit them to the sender on our premium record.

5. ***Be sure to give the Name, Postoffice, County, and State, of each subscriber and of yourself.***

6. **All sample copies** necessary to canvassers will be sent postpaid free.

8. When you order your premiums, be *sure* to state HOW TO SEND, and if by mail do not forget the postage.

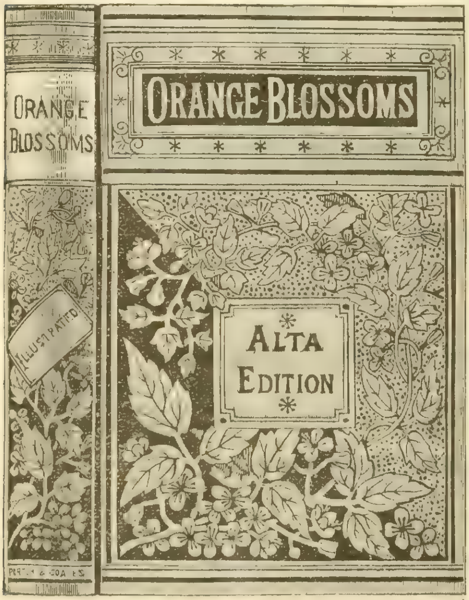
7. **To Foreign Readers.** To all foreign countries in the Postal Union, 18 cts. must accompany subscription for postage, and to all other foreign countries, 42 cts.

How to Send Money: Send money by P. O. order, registered letter, express money-order, on American Express Co., or get a N. Y. draft. For small sums of less than $1.00, we will accept clean postage-stamps, but we prefer postal-notes, but can not be responsible for the loss of either.

All NEW names sent in before Jan. 1st, 1889, will receive the journal from the time the names are received till Jan. 1st, 1890, for $1.00, besides the premium to the person sending us the name.

75-CENT BOOKS FOR 30 CTS.

Any one of the following 75-cent books given for one new name, with $1.00, and 10 cts. to pay postage. Sent postpaid for 40 cts. each, or by freight or express with other goods at 30 cts. each. This is the lowest price at which these books were ever retailed.

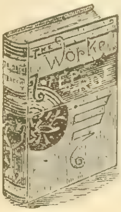


There are quite a number of editions of these 12mo cloth-bound popular authors put on the market by different publishers. The "Alta Edition," shown in the adjoining cut, is the best one. It has the clearest type, and is printed on the best paper of any; is well bound in cloth, title in gilt, on back. Each book has a silk ribbon book-mark. We can buy other editions a little cheaper, but we have decided to handle only the Alta Edition. You will find these books on sale in stores throughout the country at prices ranging from 35 to 50 cts. each. Publishers' price is 75 cts. each, postpaid. *Youth's Companion* asks 50 cts. each, postage extra. Some catalogues put them as low as 45 cts. postpaid, and you don't often get the Alta Edition, but one not so good, in its binding, printing, and quality of paper. Our price is only 40 cts. postpaid; 30 cts. when sent with other goods by express or freight, or given for one new subscriber. There are very few readers of GLEANINGS who can not secure a new subscriber among their neighbor bee-keepers, and they will not only extend our list, but can secure one of these books free. You will notice in this list, Dickens' works complete, in 15 volumes, 30 cts. each, or only $4.50 for the set. Macaulay's History of England, in 5 vols., at 30 cts. $1.50. I don't believe you ever heard of such prices. The number of pages varies from 300 to over 600 in each.

The books and authors are so well known that we will not enter on a separate description of each. There will be no reduction from this price for any quantity. Think of getting a handsome cloth-bound book, as described, for 30 cts., when you usually pay 25 cts. for a cheap paper-bound book, not nearly so large nor so well printed! In ordering, give number and name.

Robinson Crusoe. By Daniel De Foe.
Arabian Nights Entertainments.
Swiss Family Robinson.
Scottish Chiefs. By Jane Porter.
Thaddeus of Warsaw. By Jane Porter.
Children of the Abbey. By Regina Maria Roche.
Don Quixote. By Miguel de Cervantes Saavedra.
Vicar of Wakefield. By Oliver Goldsmith.
Paul and Virginia. By Bernardin de St. Pierre.
Bunyan's Pilgrim's Progress. By John Bunyan.
Bunyan's Holy War. By John Bunyan.
Gulliver's Travels. By Jonathan Swift.
Child's History of England. By Charles Dickens.
Æsop's Fables, 50 illustrations.
Baron Munchausen.
Last Days of Pompeii. By Bulwer.
Ivanhoe. By Sir Walter Scott.
Waverley. By Sir Walter Scott.
Guy Mannering. By Sir Walter Scott.
Stories from French History. By Sir Walter Scott.
Tom Brown's School Days at Rugby. By Thomas Hughes.
Under the Holly; or, Christmas at Hopeton House. By Mrs. Margaret Hosmer.
A Million too Much. A Temperance Tale. By Julia McNair Wright.
Pickwick Papers. By Charles Dickens.
Martin Chuzzlewit. By Charles Dickens.
Oliver Twist, Italy and American Notes. By Charles Dickens.
David Copperfield. By Charles Dickens.
Nicholas Nickleby. By Charles Dickens.
English History. Tales from. By Agnes Strickland.
Ancient History. True Stories from. By Agnes Strickland.
Modern History. True Stories from. By Agnes Strickland.
Pique. A Tale of the English Aristocracy.
Orange Blossoms. By T. S. Arthur.
Bar-Rooms at Brantly. By T. S. Arthur.
Cook's Voyages around the World.
Remarkable Events in the World's History. By L. H. Young.
Children's Bible Stories. By Mrs. Gilespie Smyth.
Lady of the Lake. By Sir Walter Scott.
Pioneer Women of the West. By Mrs. Ellet.
Christmas Stories. Selections from the Best Writers.
Speeches of Daniel Webster. By B. F. Teft.
Daniel Webster. Life of. By B. F. Teft.
Napoleon. Life of. By M. A. Arnault.
George Washington. Life of. By Bancroft.
Henry Clay. Life of. By Epes Sargent and Horace Greeley.
Andrew Jackson. Life of. By John S. Jenkins.
John Quincy Adams. Life of. By William H. Seward.
William H. Harrison. Life of. By H. Montgomery.
Patrick Henry. Life of. By William Wirt.
Old Curiosity Shop and Reprinted Pieces. By Charles Dickens.
Barnaby Rudge and Hard Times. By Charles Dickens.
Bleak House. By Charles Dickens.
Little Dorrit. By Charles Dickens.
Dombey & Son. By Charles Dickens.
Tour of the World in Eighty Days. By Jules Verne.
Christmas Books, Uncommercial Traveller and Additional Christmas Stories. By Charles Dickens.
Tale of Two Cities, and Great Expectations. By Charles Dickens.
Our Mutual Friend. By Charles Dickens.
Edwin Drood; Sketches; Master Humphries' Clock, etc., etc. By Charles Dickens.
Jane Eyre. By Charlotte Bronte.
Lucille. By Owen Meredith.
Fox's Book of Martyrs. By John Fox.
Macaulay's History of England. Vol. I.
Macaulay's History of England. Vol. II.
Macaulay's History of England. Vol. III.
Macaulay's History of England. Vol. IV.
Macaulay's History of England. Vol. V.
Tom Brown at Oxford. By Thomas Hughes.
East Lynne; or, The Earl's Daughter. By Mrs. Henry Wood.
John Halifax, Gentleman. By Miss Mulock.
Tennyson's Poems. By Alfred Tennyson.
Idylls of the King. By Alfred Tennyson.
Paradise Lost. By John Milton.
Hold the Fort. By D. L. Moody.
Evenings with Moody and Sankey.

E. P. ROE'S NOVELS.



This author, who has so recently gone to his eternal reward, has written some of the most popular novels of this century. I presume there are few of our readers who are not familiar with some of his writings, such as "The Opening of a Chestnut Burr," or "Barriers Burned Away." Mr. Roe was a minister of the gospel before he devoted his whole time to authorship. One is made no worse by reading his stories, but is very likely to be made better. Here is a complete list:

The Opening of a Chestnut Burr.
Near to Nature's Heart.
From Jest to Earnest.
Barriers Burned Away.
Without a Home.
A Young Girl's Wooing.
He Fell in Love with His Wife.
Nature's Serial Story.
An Original Belle.
A Face Illumined.
His Sombre Rivals.
Day of Fate.
A Knight of the Nineteenth Century.
Driven Back to Eden.
What Can She Do?
The Earth Trembled.
Miss Lou (his latest).

These are all nicely cloth bound, with title in gilt. Regular retail price is $1.50. We will mail any one of the above postpaid to any address for $1.25, or give one free for 4 subscribers, with $4.00.

Ben Hur: a Tale of The Christ. By Gen. Lew Wallace. The great sale of this book places it as one of the greatest productions of the human mind. From the time the three wise men met in the desert to discuss the wonderful star they had seen in the east, till Christ died on Calvary, the reader is taken rapidly behind the scenes in pagan Rome; he views the races at Antioch, and the exclusive bigotry of the Jews at Jerusalem. It contains 566 pages, and should be read in connection with Geike's Life of Christ. Given for four new names, postpaid, or $1.25.

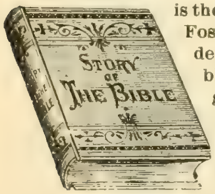
Uncle Tom's Cabin, by Harriet Beecher Stowe.

Sent free postpaid to any address for $1.00, or for 4 subscribers, with $4.00. By express or freight, with other goods, for 90 cents.

Geike's Life of Christ. In this book we have a condensation of the scholarship of about 300 of the greatest writers on biblical matters,—German, French, and English. To read it is practically to walk and talk with the Christ of the gospels. With the hand of a master, Geike weaves this mass of scholarship into a fabric which is as interesting as any novel, and as full of information regarding things as they existed in the time of Jesus as any commentary can possibly be. Geike is a giant in intellectual scope, and thoroughly orthodox in teaching; but with all this, his style is simple and easy of comprehension. **Given for two new names and your own renewal,** or sent postpaid for the price, 70 cents, or 10 cents less when sent with other goods.

THREE REMARKABLE BOOKS.

The Story of the Bible. This wonderful book



is the production of Rev. Charles Foster, of Philadelphia, lately deceased. It is the whole Bible reproduced in simple language, making a book of 700 pages, illustrated with 274 engravings. It is so plainly and pleasantly written that grown people, as well as children, will hardly want to lay it down. In the hard passages in the Bible, difficult to understand, it makes a commentary that will be thankfully received by some others besides children. Indeed, it has proven so simple, reliable, and helpful, that it has been reprinted in many foreign languages. It is a well-made book, printed on fine paper. Regular agent's price is $1.50. Our price is $1.00; 15 cents extra if sent by mail, or given free for 2 new names and one renewal, with $3.00, and 15 cents extra to pay postage.

First Steps for Little Feet. This is by the same author, and is a collection of simple Bible stories intended more especially for younger learners. Every child should have one of these to read; 328 pages, and 140 illustrations. Very nicely printed, and bound in cloth, title in gilt. Price 50 cents each, or 2 for 75. Postage extra, 6 cents each. Given free postpaid for 2 subscribers, with $2.00.

Fables and Allegories; or, New Lights on Old Paths. This is a most magnificent book by the same author. It measures 8 by 9¼, by 1⅝ inches thick, and weighs 4 lbs. It is printed on very heavy toned paper, with heavy gilt edges; is bound in light-blue cloth, embossed in black and gold; contains 512 pages and 350 original illustrations. The subject-matter is a series of fables and allegories, each giving a most wholesome moral lesson that very few of us, old or young, do not need. This book would be an ornament on the center-table in any home; and if read and pondered, and its lessons put into practice, many hearts would become more lovely, and many homes more pleasant and beautiful. The lessons taught are made much more pungent by the pictures accompanying, as in many cases the story is more than half told in the pictures. So large and nice looking a book is rarely sold by agents for less than $4.00. Our price is $2.00. By mail, 32 cts. extra, or given free for 6 subscribers, with $6.00, and 32 cts. to pay postage, if sent by mail.

THE CHRISTIAN'S SECRET OF A HAPPY LIFE. This book should be in the hands of every one who desires to live a happy life, and who does not? It is so popular that over 50,000 have been sold since its publication a few years ago. We received from the publishers as many as 1250 in one shipment. This edition was revised and enlarged, so that the book now contains over 200 pages. Price, cloth bound, 50 cts. In paper, 25 cts. Postage extra, 8 cts. for the cloth

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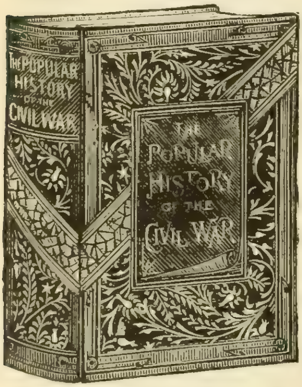
THE POPULAR HISTORY OF THE CIVIL WAR.



Almost a multitude of books directly bearing upon the Rebellion have been published. Yet it is our firm belief that the War Histories heretofore published are but meagerly adapted to the wants of the masses of American citizens to-day; first, because they are too expensive, involving an outlay greater than the majority of people can afford to make; and, second, because they are too lengthy, going so minutely into particulars and details that they become dry and uninteresting. This work is most aptly and appropriately entitled "THE POPULAR HISTORY OF THE CIVIL WAR," because it meets the *popular* demand for an authentic history of the Rebellion, written in the most entertaining manner and published at a price within the reach of all. The book is a thorough, complete and authentic history, not only of every important battle and naval engagement that occurred during the war, but is likewise very complete in its treatment of the political conditions, sectional differences and other causes which brought on the great conflict. It is just such a war history as every American citizen should possess, and will prove of the utmost interest and value, not only to those who well remember, and some of whom participated in the war for the Union, but especially to that large class who have grown to manhood and womanhood long since the war closed. The new edition of this book, now offered, is greatly enlarged, both as to size of page and number of pages, and contains, in addition to the history proper, a sketch of **The Grand Army of the Republic,** by a prominent officer of the organization, likewise an appendix devoted to **Anecdotes of the Rebellion,** containing a large collection of humorous, pathetic and thrilling narratives of actual experiences during the war. "THE POPULAR HISTORY OF THE CIVIL WAR" is a large book of 544 pages, 12mo, handsomely printed in large type upon fine paper, and elegantly bound in cloth, embellished with designs in black and gold. It is profusely and elegantly illustrated, the engravings representing scenes of the prominent battle-fields and naval engagements, camp life and picket duty, likewise portraits of the great Generals, both Union and Confederate, and other prominent men upon both sides who were identified with the struggle. The book will be sent by mail, post-paid, upon receipt of only **75 Cts.,** or for two subscriptions besides your own.

and 5 cts. for paper bound. A large reduction will be made in quantities. The cloth book given postpaid for two subscribers, or the paper for one new subscriber.

OUR LIST OF 10-CENT BOOKS.

Any one of which will be sent postpaid for one subscriber.

PEABODY'S WEBSTER'S DICTIONARY. 25,000 words and phrases, and illustrated with 250 engravings; cloth bound. This is the one we have been selling for years at 15 cents. We thought we had done something wonderful when we offered so large a dictionary for 15 cents, but we are now able to sell them for a dime. Just think of it! Postage extra, 5 cents.

ONE-SYLLABLE PRIMER; 6x8; 48 pages, full of pictures; something that will always be wanted as long as there are children in our homes. Postage 3 cts.

POULTRY FOR PLEASURE AND PROFIT; 48 pages, and 20 illustrations. A complete little book of instructions. It treats of the best varieties for pleasure and profit; how to house and yard; how to manage; how to feed; diseases, incubation, etc. It is a 25-cent book; but by getting 1000 of them we can sell them for 10 cents. Postage 1 cent.

THE HORSE AND HIS DISEASES, by Dr. B. J. Kendall; 100 pages, and many illustrations. Over 500,000 of these books have been sold, because they are so popular and complete, for a small hand-book. It gives the symptoms of most diseases, and treatment for the same. This is another 25-cent book that we got down to a dime by taking 1000 of them. Postage 3 cents.

SILK AND THE SILKWORM. This is a complete work of instruction on silk culture, by Nellie Lincoln Rossiter, a practical silk culturist; 32 pages. Silk culture is the favorite pursuit of many ladies in our land; and all who are interested will find this little work very instructive. The price printed on it is 25 cents, but we sell them for 10 cents. Postage 1 cent.

NEW TESTAMENT, NEW VERSION; 434 pages, printed in nonpareil type. This should be in the possession of every student of the New Testament. Even if it does not come into common use, it is helpful to know what changes in translation the New Version gives. Postage 5 cents.

JOHN PLOUGHMAN'S TALES AND PICTURES, by Charles Spurgeon; 128 pages, and a picture on almost every page. John Plowman talks plainly, and makes a good point in every talk. It is by no means dry reading, either. Postage 3 cents.

SCRAP-BOOKS.

We have the nicest lot of scrap-books this year we ever had for the price.

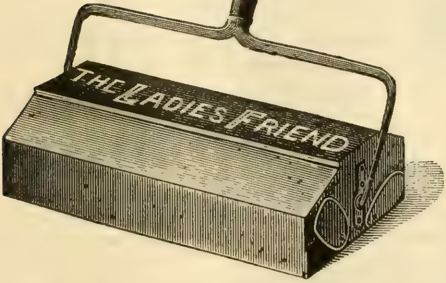
Our 10-cent Scrap-Album measures 10 x 12 inches, and contains 16 pages. Price 10 cts.; by mail, 5 cts. extra, or given free for one renewal, with $1.00, and 5 cts. for postage.

Our 25-cent Scrap-Book measures 12½ x 16 inches, and contains 32 pages. This has a most beautifully embossed cover, with colored chromo on the upper left-hand corner. Price 25 cts.; by mail, 13 cts. extra, or given for one new subscriber, with $1.00, and 13 cts. to pay postage.

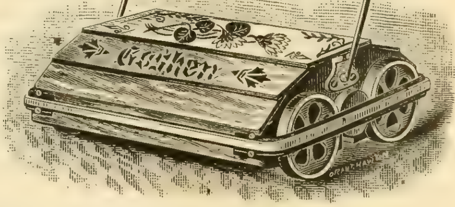
Our 50-cent Cloth-bound Scrap-Book measures 11 x 14½ inches, and has 88 pages. This, you notice, has a capacity for a pile of scraps; and being cloth-bound it will wear for a long time. Price 50 cts.; by mail, 16 cts. extra, or given free for 2 subscribers, with $2 00, and 16 cts. to pay postage.

MISCELLANEOUS ARTICLES.

CARPET-SWEEPERS AT TWO-THIRDS REGULAR PRICES.



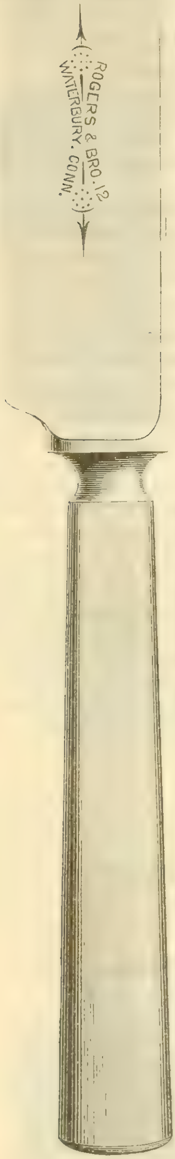
Ladies' Friend, Price $1.50.



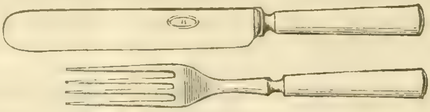
Goshen Sweeper, $2.00.

These are two of the most reliable sweepers made, and our readers know that we have been selling them for the past two years (nearly) for $2.00 and $3.00. We have decided to cut the price down to the above to those who take GLEANINGS. The Ladies' Friend has two drive-wheels, while the Goshen has four. The latter therefore runs much easier. Mrs. Root has used a Ladies' Friend for 5 years, and does not want any other kind. The Goshen, you notice, has a rubber band around it to prevent it from marring the furniture, should you run against it. No housewife who has carpets (and who has not?) should be without one of these sweepers, especially when they cost so little. You have no idea how much it lightens the labor of sweeping, to say nothing of the saving to your carpets. I don't know of a woman who has once got used to a good sweeper who would be without one for almost any price. The Ladies' Friend will be given for 6 subscribers, with $6.00, and the Goshen for 8 subscribers, with $8.00. They must be sent by express or by freight with other goods.

Rogers & Bro's. Silver-Plated Ware.



The name of the makers of this ware is a sufficient guarantee of its sterling value. No better plated ware is produced anywhere than that bearing the brand on the accompanying cut. I think you will find our prices some lower than you are asked by your local dealer.



Medium Knives and Forks, Triple Plate, on Steel, either **square** or **Windsor** pattern (the cut is square pattern), $3.75 per doz. (6 knives and 6 forks). Postage extra, 36 cts. Either knives or forks alone will be $3.75 per doz., or $1.90 per ½ doz. Postage on knives, 44 cts. per doz.; on forks, 30 cts. per doz.

Dessert Forks, Triple Plate, on German silver, $3.50 per set of 6, or $7.00 per doz. Postage on ½ doz., 10 cts.

Knives and forks, same patterns as above, except with **figured handles in relief, 25 cts. per doz. extra**; with **old silver, relief handles, 50 cts. per doz. extra.**

Tea Spoons, Triple Plate, on German or nickel silver. Tipped pattern. Price $3.75 per doz. Postage, 10 cts. extra per doz.

Dessert Spoons, same as above. Price $6.50 per doz. Postage, 20 cts. extra.

Table-Spoons, same as above. Price $7.50 per doz. Postage, 25 cts. extra.

Tea Spoons, Single Plate, on nickel silver. Price $2.50 per doz. **Table-Spoons,** $5.00 per doz.

Butter-Knife, Triple Plate, on steel. Price 35 cts. each. Postage 3 cts. extra.

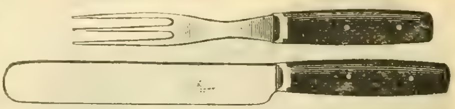
Sugar-Shell, Triple Plate, on nickel silver. Price 60 cts. each; **Single plate,** 35 cts. Postage, 2 cts. extra. If you order the above by mail, send 10 cts. extra with each order, to register the package. We will not be responsible for the loss of unregistered mail matter.

Each subscription to Gleanings, accompanied by $1.00, will count as 25 cents toward the price of any of the above articles of silver ware, provided at least half are new names.

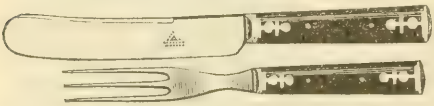
STEEL TABLE CUTLERY.

Much has been said of late in the papers in regard to "trusts" of different kinds; i. e., combinations of capital to control the price of certain commodities. The object is to get higher prices; and it is accomplished by paying some factories to stop work so that there will not be more of the articles, under control, manufactured than will sell at good prices, or than is actually needed by the public. Table cutlery has been largely controlled by such a trust for a year or more. As an example, we are asked over 50 per cent more now for a butcher-knife than we had to pay two or three years ago. Other things are not raised quite as much. Now, what I want to tell you is, that we have just bought about $300 worth of table cutlery outside and much below combination price, and have some special bargains for you.

Medium Knives and Forks, steel, 5¼-inch blades, cocoa handles, no bolsters, **55 cts. per set** of 6 knives and 6 forks. Postage, 24 cts. per set, or sent free for **2 new subscribers,** with $2.00, and 24 cts. to pay postage.

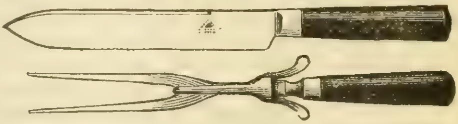


Knives and Forks, swell cocoa handles, single bolster, 6-inch blades, as shown above. These are very finely finished, and I think you will not find such goods offered for less than $1.50 per set. **Our price, $1.10 per set** of 6 knives and 6 forks. Postage, 26 cts. extra per set. Sent free for **4 subscribers,** with $4.00, and 26 cts. to pay postage. Knives and forks with **white bone handles at same price,** or for **4 subscribers.**



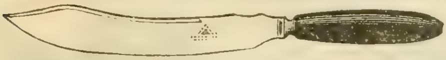
Knives and Forks, Fancy double bolster. We have **several styles,** in ebony and cocoa handles. Above cut shows only one style. Finely finished. **Price $1.35 per set.** Postage, 30 cents extra per set. Sent free for **6 subscribers,** with $6.00, and 30 cts. to pay postage.

Carvers for Thanksgiving and Christmas Dinners.



Straight Carving-Knife and Fork. Cocoa handle; blade 8 inches long. A very good everyday article. **Price 75 cts.** Postage 13 cts. Sent free for **3 subscribers** with $3.00, and 13 cts. to pay postage.

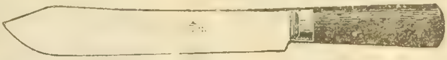
Curved Carving-Knife and Fork. Rubber handle, 8-inch blade. Very finely finished. Regular retail price, $2.00. **Our price $1.50.** Postage 14 cts. extra. Sent free for **6 subscribers,** with $6.00, and 14 cts. to pay postage.



Fancy Curved Carving-Knife and Fork. Rubber handle, 9-inch blade, as shown above. A very handsome and strictly first-class article. **Price $2.00.** Postage, 15 cts. extra. Or we can give you genuine stag handles at same price. Sent free for **8 subscribers,** with $8.00, and 15 cts. extra for postage.

Bread - Knife, 8-Inch; a first - class knife. **Price 35 cents.** Postage, 8 cts. extra. Sent free, **postpaid,** for **2 subscribers,** and $2.00.

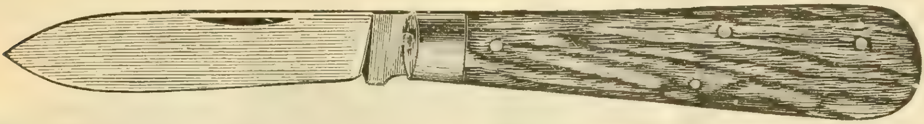
Bread-Knife, 9-Inch Blade, Rosewood handle; an excellent slicer. **Price 50 cts.** Postage, 8 cts. extra. **Given** for **2 subscribers,** with $2.00, and 8 cents for postage.



Butcher's Steak-Knife. This is a tremendous big slicer; handle 5½ inches long, and the blade 12 inches, and 1¾ broad. This makes an excellent bread-knife; and, in case of a combat with burglars, it is big enough to use as a short sword. It is made of best forged steel, and cost about 96 cts. to produce it. They were bought among other goods at a bankrupt sale, and we offer what we have at **75cts. each;** 15 cts. extra if sent by mail. We can not get any more when these are gone. **Given** for **3 subscribers,** with $3.00, and 15 cts. to pay postage.

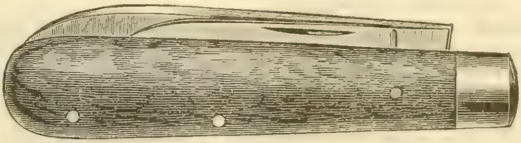
≪POCKET · CUTLERY.≫

We offer you a pretty big list of knives to select from this time, and they are all first-class American goods that we can guarantee. We have bought them direct from the factories at jobbing prices, so that we are enabled to offer the best value for the money.



Ten-Cent American Knife, exact size of cut, either sharp or round-pointed blades. This has been one of our leaders for many years, and is still as good as ever. Blades are best steel, and the knives are well finished. Price 10 cts. each; by mail, 12 cts., or given postpaid for one subscriber, either new or renewal.

American Barlow, single blade, 3½ inches long when closed. This is a very popular and serviceable knife, and always gives satisfaction. It is usually sold for 20 or 25 cts. Our price is 15 cts. By mail, 4 cts. extra. Given free postpaid for one **new** subscriber, with $1.00.

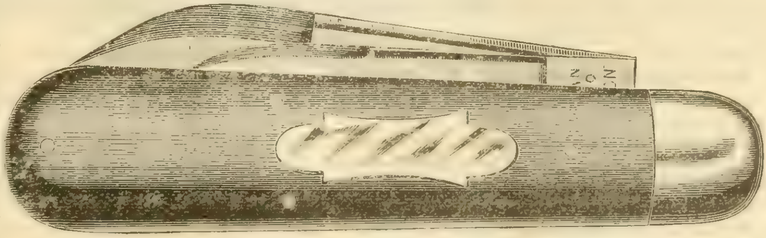


Two-Bladed, 20-Cent Knife. Cut shows this knife exactly when closed. It is just like the 10-cent one, but with 2 blades, cocoa handle, nicely finished. Price 20 cts. By mail, 2 cts. extra. Given free, postpaid, for one **new** subscriber, with $1.00.

One-Bladed, 20-Cent Knife. This is 3⅝ inches long when closed, and is a pretty big knife for the money. Cocoa handle, well finished. Price 20 cts. By mail, 4 cts. extra. Given free, postpaid, for one new subscriber, with $1.00.

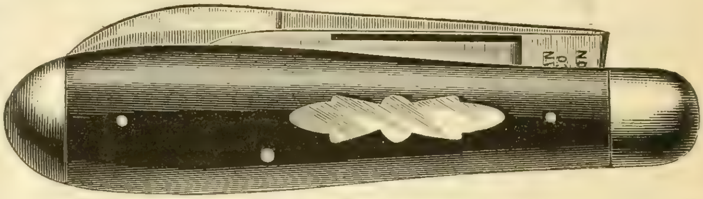
Two-Bladed, 25-Cent Knife. This is just like the 20-cent one above, except that it is larger, being 3¼ inches long, closed. This makes a nice size for general use. Price 25 cts. By mail, 5 cts. extra. Given for one new subscriber, with $1.00, and 5 cts. to pay postage.

25-Cent Ladies' Pen-Knife, 2 blade. This is an extra good little knife, being made by American Knife Co. We have sold many similar to this, but none of so reliable a make till now. Price 25 cts. Postage 2 cts. extra, or given free postpaid for one new subscriber, with $1.00.

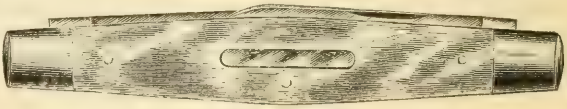


35-Cent "Whopper," 2 - Bladed Knife, ⅛ in. longer than cut. It has no shield inlaid on handle, as shown. Cocoa handle. A nicely finished knife, and a pretty big one too, for the price, which is only 35 cents. By mail, 6 cts. extra, or given free for one new subscriber, with $1.00, and 10 cts. extra for postage and part cost of knife.

25-Cent "Whopper," Single-Bladed Knife. This is ⅛ inch shorter than the cut above, and has only one blade. Ebony handle. A pretty big knife for 25 cts. By mail, 5 cts. extra for postage. Given free for one new subscriber, with $1.00, and 5 cts. extra to pay postage.



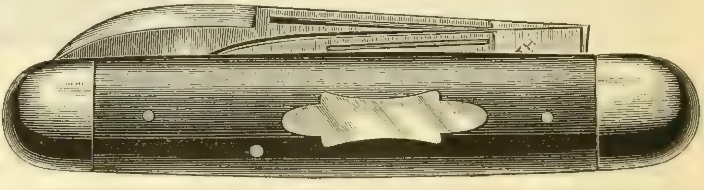
35-Cent Razor-Steel Knife, 2 blades, exact size of cut, except the handle is a trifle larger at the end in which the blades are fastened. The shield is a little different shape. This is a very popular knife. We have sold over 100 dozen of them, and they give excellent satisfaction. Finely finished, with either cocoa or ebony handles. Price 35 cts. By mail, 5 cts. extra. Given free for one new subscriber, with $1.00, and 5 cts. extra to pay postage. All the above knives are iron lined; and are staple goods that we have sold for years, giving entire satisfaction.



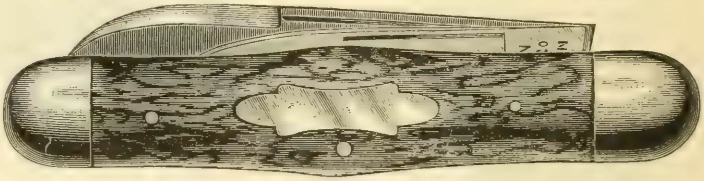
Queen-Cell Knife. This is ⅛ inch longer than cut. Ebony handle; brass lined, German-silver tips, which are longer than shown above. The handle is not inlaid, as shown. This is a very popular knife, and one of which we have sold a great many. They are used for cutting out queen-cells. Very finely finished. Price 35 cts. By mail, 2 cts. extra. Given free postpaid for one new subscriber, with $1.00, and 10 cts. extra; or for one new name and one renewal, with $2.00.

35-Cent Ladies' Knife. This is ⅛ in. shorter than the cut, and the ends are rounding. Otherwise the same general description applies. We have them with either ivory or ebony handles. Price 35 cts. By mail, 2 cts. extra, or given on same terms as above.

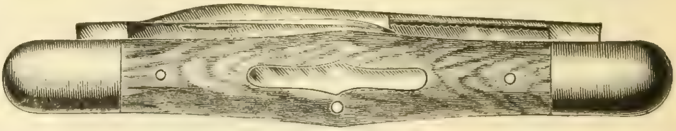
35-Cent Pearl-Handled Knife. This is something new, and is a little beauty. A real pearl-handled knife with 2 blades, best American make, is a rare thing at 35 cents. About same size as Ladies' knife above. Price 35 cts. By mail, 2 cts. extra, or given on same terms as queen-cell knife.



45-Cent Excelsior Knife. This is a very popular knife, always sold before for 50 cts. It is brass lined, and German-silver tipped. Handles are either ebony or cocoa. Price 45 cts., or by mail postpaid for 50 cts. Given free for two subscribers with $2.00, one of which must be a new name, and the other may be new or a renewal.



50-Cent Diamond Knife. Exactly like cut; ebony handle, brass lined, German-silver tips and inlay. This is a new style with us this year, and we think it is going to please. Very finely finished, and about the best knife in the list. Price 50 cents. By mail, 5 cents each extra. Given for 2 subscribers, with $2.00, and 5 cents extra to pay postage.



50-Cent Diamond Pen-Knife. This, you notice, is the same shape as above, but slimmer. Same general description applies. This makes a very neat vestpocket knife for a gentleman. Price 50 cents. By mail, 3 cents extra. Given free for 2 subscribers, with $2.00, and 3 cents for postage.

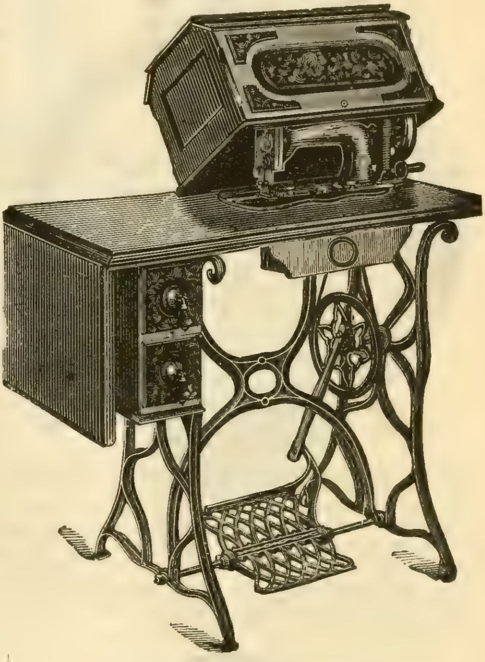
Three-Bladed Knife. This is similar to the above in shape, and is a very fine knife. One large and two small blades. Price 60 cents. By mail, 3 cents extra, or given for 2 new subscribers with $2.00, and 3 cents extra to pay postage.

Our 75-Cent Hunter's Knife. This is the biggest one of all, being 9½ inches long when open, and 5⅜ inches long closed. Extra heavy, and strong. Our packers use one to split boards and trim boxes. We never knew of their being sold for less than $1.00. Our price is 75 cents. By mail 10 cents extra. Given for 3 subscribers, with $3.00, and 10 cents to pay postage.

Pruning and Budding Knives. We have 3 sizes of pruning-knives; 3⅜ inch, closed, for 25 cts.; 4 inch for 35 cents; and 4⅜ inch for 50 cents each. Postage extra, 4, 5, and 6 cents each, respectively. A **Budding-Knife,** 5⅜ inches long, for 35 cts., and 5 cts. extra, by mail.

THE CHICAGO SINGER ✢ SEWING ✢ MACHINE.

A First-Class Machine, Warranted for Five Years, at Less Than One-Third the Usual Price Paid to Agents.



The time for paying $40 to $80 for a good sewing-machine has passed, now that they can be placed right in the consumer's hands direct from the manufacturers, without the intermediate expense of canvassing agents, which is no small item. Some time ago we received a letter from the Chicago Sewing-machine Co., to the effect that they had taken all their agents off the road, and were going to rely on newspapers taking hold of their machine to sell it. They thus reduced selling expenses so much that they were able to give us prices that astonished us. We at once sent for a sample machine for examination. It has been received, examined, and thoroughly tested, to our entire satisfaction. We copy the following from their circular:

These machines are made after

THE LATEST MODELS

of the Singer Mfg. Co.'s machines, and are perfect fac similes of their machines in shape, ornamentation, and appearance, with the exception of the lettering on the arm of machine, and the trade-mark. All the parts are made to gauge exactly the same as the Singer Co.'s parts, and are constructed respectively of precisely the same materials.

The utmost care is exercised in the selection of the metals used, and only the very best quality is purchased. Each machine is thoroughly well made, and is fitted with the utmost nicety and exactness, and no machine is permitted by the inspector to go out of the shops until it has been fully tested and proved to do perfect work, and run light and without noise.

☞ Each machine, of whatever style, is furnished with the following equipment of tools and accessories: One foot-hammer, one screw-driver, one wrench, one oil-can and oil; one gauge, one gauge-screw, one extra throat-plate, one extra check-spring, one package of needles, six bobbins, and one instruction book. In addition to the above we furnish an

EXTRA SET OF ATTACHMENTS,

consisting of the following: One tucker, one foot-ruffler, one set of plate hemmers, five different widths up to ⅞ of an inch, one binder, and one thread-cutter.

This is a copy of the warranty:

CERTIFICATE OF WARRANTY OF THE CHICAGO SINGER SEWING-MACHINE.

We hereby warrant the ordinary wear and tear of the Chicago Singer Sewing Machine No.......for the term of five years from the date of the sale thereof, and if any part of said machine gives out by reason of any defect therein, we agree to replace the same free of charge. This warranty does not cover accidental breakage, nor the wear of Shuttles, Bobbins, and Needles. CHICAGO SEWING MACHINE CO.

We do not hesitate to recommend these machines, and think they will be a boon to many of our readers. These machines will all be shipped from Chicago, Ill., direct to customer. Twelve different styles are made, but we mention here only the five cheaper ones. The wood used in all of these is oil-polished walnut.

No. 1 consists of the machine as shown in cut, without the two side-drawers, drop-leaf, and Gothic cover. Price $11.00, or given for 40 subscribers with $40.00.

No. 2, same as No. 1, with Gothic cover added. Price $12.50, or given for 44 subscribers with $44.00.

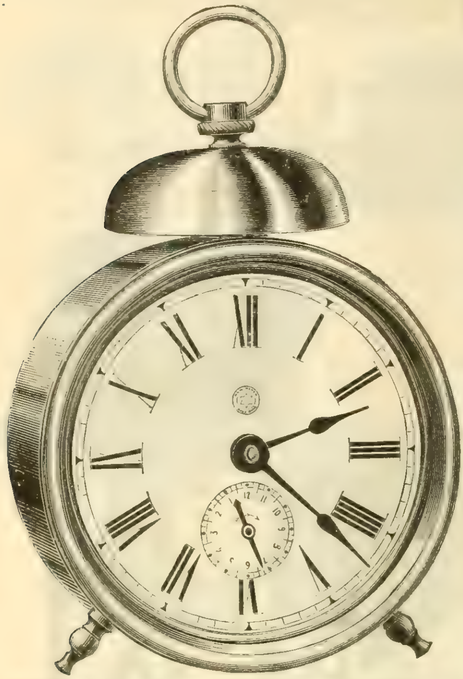
No. 3 is the one shown above, described as follows: Ornamented head on iron stand. Drop-leaf table of walnut, oil-polished, with patent drop-leaf support; Gothic cover with veneered panels. Case of two drawers with lock, veneered fronts, and elegant nickel-plated drop-ring handles. Price $14.00, or given for 48 subscribers, with $48.00.

No. 4, same as No. 3, with two more side drawers to the right. Price $15, or given for 52 subscribers, with $52.00.

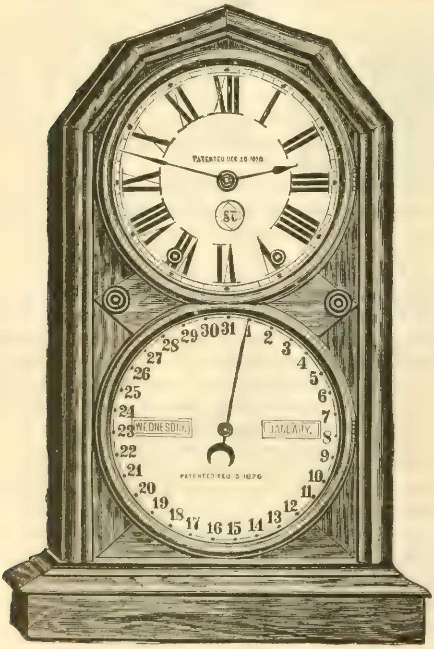
No. 5 is the same, with 3 side drawers on each side; price $16.00, or given for 56 subscribers, with $56.00.

REMEMBER, THESE MACHINES ARE SHIPPED FROM THE FACTORY IN CHICAGO, DIRECT, AND NOT FROM MEDINA.

THE WHISTLER CLOCK.



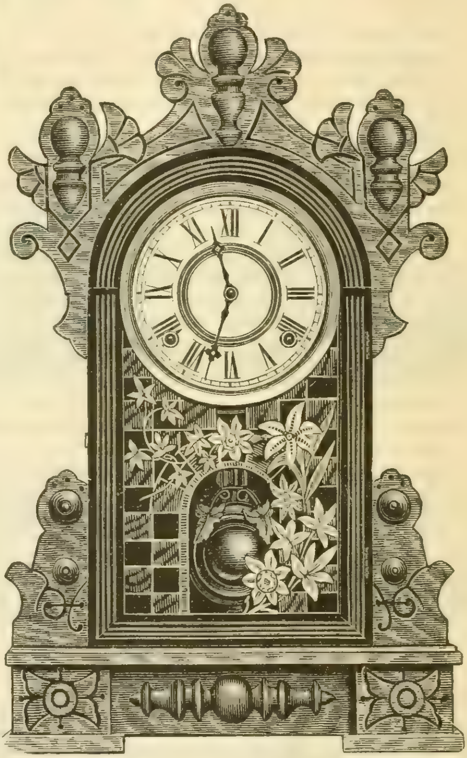
With Alarm as shown, **$1.50. Without Alarm, $1.00.** Sent by mail for 16 cts. each extra. Clock **with Alarm** given for **5 subscribers** with $5.00, or **without Alarm** for **4 subscribers** with $4.00, and 16 cts. extra in each case to pay postage if sent by mail. These are accurate timers, lever movement, made by New Haven Clock Co., dial 3½ inches in diameter .They are carefully tested and regulated before being sent out.



SETH THOMAS CALENDAR CLOCK, 8 DAY, SPRING STRIKE.

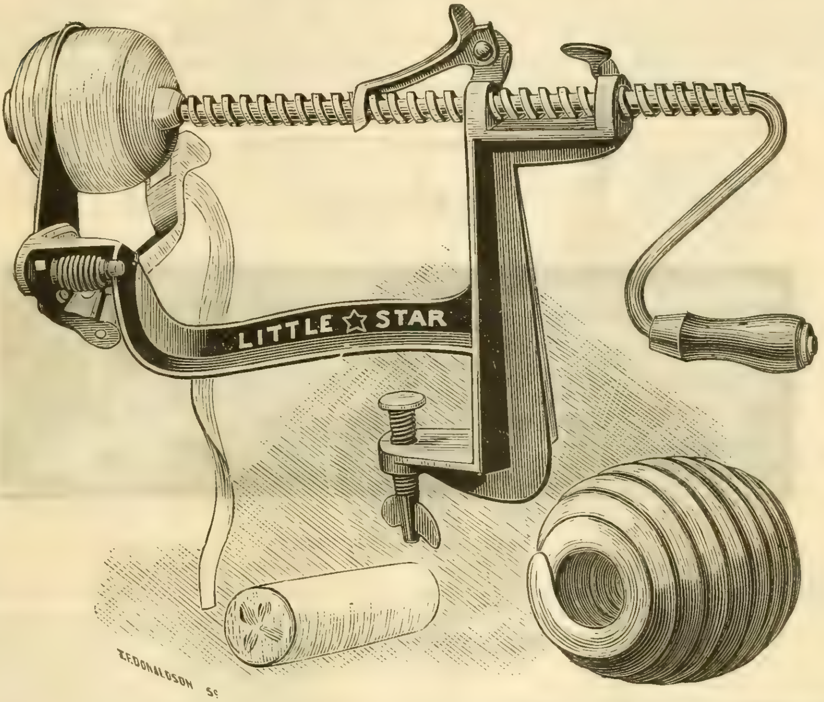
Tells the time of day, day of week and month, and is a perpetual calendar, making accurate changes every month and year. Even leap year, when we have 29 days in February, is correctly recorded. One of these clocks has kept the time for many years, by which our 60 to 100 employes commence and quit work. The fact that it is made by the Seth Thomas Clock Co. is a guarantee that it is a reliable timekeeper that will last for many years. The frame is of walnut, 20 inches high, and nicely finished. The dials are 8 inches in diameter. Directions for setting and starting, which are very simple, accompany each clock. Each is boxed to go safely by express or freight. Weight, boxed, 20 lbs. Price $10.00. Will be sent free by express for **40 subscribers to Gleanings and $40.00.** If you get less than 40 names, each name will count 25 cts. toward the price.

EIGHT-DAY CLOCKS, SPRING STRIKE, WITH OR WITHOUT ALARM.



We have an **assortment of different patterns,** the accompanying cut showing only one of them. They are reliable time-keepers, made by the Gilbert Clock Co. Height, 20 inches, walnut frame; weight, boxed for shipment, about 20 lbs. **Price, without alarm, $4.00; with alarm, $4.50.** They strike on a wire bell, which produces a very fine tone, resembling a cathedral gong. The $4.00 clock will be given to the person sending **16 subscribers and $16.00; the $4.50 clock,** with alarm, **for 18 subscribers and $18.00.** A smaller and plainer clock, just as good in every respect, except in appearance, 50 cts. less than above, or given for 2 less subscribers. If you don't get the full number of names, each one will count 25 cts. toward the price.

"LITTLE STAR PARER, CORER, AND SLICER."



Simplest, Best, and Cheapest Apple-Parer Made.

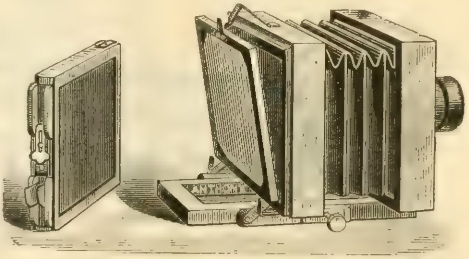
Picture is a trifle Less than One-half Actual Size.

The above cut shows the most simple and ingenious machine for paring, coring, and slicing apples we have ever seen. You notice there are no cogwheels, and very little machinery to it, o that it can not get out of order very easily. If you do not want to core and slice the apples, the attachment for doing this may be removed very easily. To operate: Draw the spiral rod back, and place the apple on the fork on the end; push the little dog down on to the screw. Turn the crank to the right until it strikes the dog and turns it up out of the spiral groove. This frees the screw so you can draw it back. The apple, pared and sliced, drops off beyond the slicer, and the little stop to the left of the dog pushes the core off. These are usually sold for 75 cts. each. Our price is 50 cts.; by mail, 25 cts. extra. Given for 2 subscribers, with $2.00, and 25 cents to pay postage if sent by mail.

AMATEUR PHOTOGRAPHY.

One of the most fascinating outdoor pastime sports is amateur photography. Wonderful strides have been made in the art since the advent of the dry plates. Amateurs can now with very little experience, and at a very little outlay, comparatively, produce work that compares with that turned out by professionals. Quite a number of engravings which have recently appeared in GLEANINGS were reproduced from photographs taken with an amateur photographic outfit. Anthony's No. 1 equipment we confidently recommend as cheap, and as being first class in every respect.

This consists of a mahogany camera for making pictures vertically or horizontally, measuring 4 x 5 inches; one double dry-plate holder, one fine single achromatic lens, one improved triplex jointed tripod, all packed in a neat carrying case weighing only 6¾ lbs. We will furnish this outfit for 35 names, or for the price, $9,00. With a box of dry plates (65 cts. per dozen), the amateur with the above equipment has every thing necessary for making pictures, providing he employs the photographer of his place to develop and print the pictures. This he will do for a small sum. If his time is money, this will be a better way. But if he has leisure evenings, and would like to enjoy the fun of making pictures, he can do so himself, for less

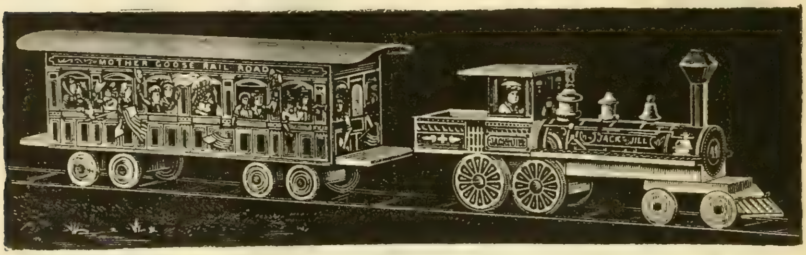


Anthony's No. 1 Equipment.

money. The necessary outfit for this is as follows.

One dozen Stanley dry plates, 4 x 5, 65 cts.; two developing-trays at 20 cts. each, 40 cts.; one printing-frame, 38 cts.; one box of 2 dozen sensitized sheets, 40 cts.; one Tidsdel candle ruby lamp, $1.35; one bottle Anthony's "Economical" developer, ready prepared, 40 cts.; one box of hyposulphide, 8 cts., and one book of instructions, "How to Take Photographs," 50 cts. Total $4.15, or we will furnish the whole for 12 names. We would advise amateurs to buy their chemicals ready prepared. There are cheaper outfits on the market than this, but the work they do is considerably inferior to that turned out by the one named above.

TOYS.



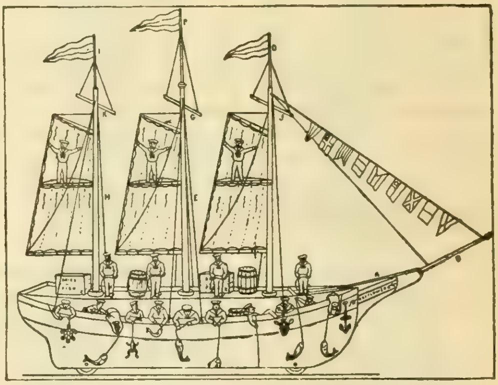
MOTHER GOOSE TRAIN.

This is a mammoth lithograped wooden train, 42 inches long. All the parts pack away in the car when not in use. Price $1.00 each, or given free for 4 subscribers with $4.80. Too heavy to go by mail.

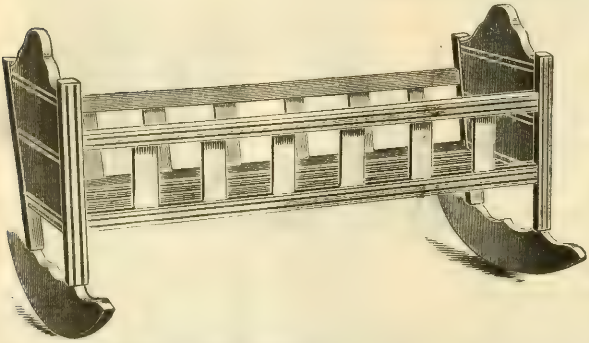
VOLUNTEER SAIL-BOAT.

Every boy his own Boat-builder.

This is composed of blocks; and, when set up, represents a full-rigged ship equipped, manned, and loaded with freight. Length 44 inches; width 5; height 34¼. Every thing packs snugly into the body of the boat, making a neat package. It can be easily put together by any boy; and when rigged out it makes a very pretty toy. It is mounted on wheels, so that it can be drawn about the room; hence it is not necessary to go and hunt up a puddle or pond in which to try it. Price $1.00, or given for 4 subscribers, with $4.00. By mail, 60 cts. extra.

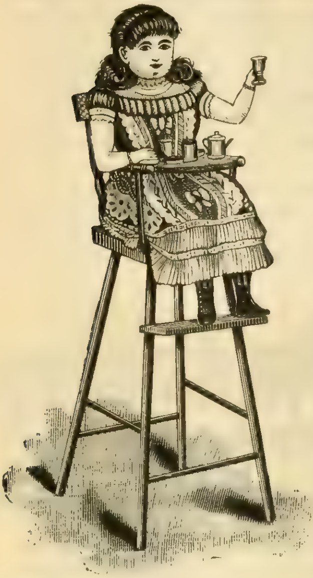


DOLL'S CRADLE.



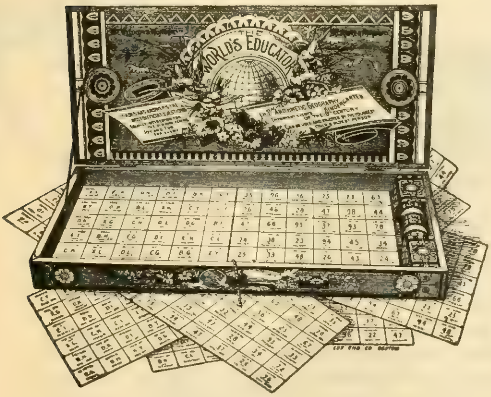
Length 16 inches; width 7½; height 8½. The little girl that never has a dollie to play with misses a heap of enjoyment and pleasure. When she has a doll she wants to rock it to sleep, just as her mamma does the baby. Here is a chance for many of the little girls who read and write the juvenile letters, to get a cradle for their doll, free, and at the same time do some other little girl and her papa a good turn by inducing them to take GLEANINGS. This cradle is large enough for most dolls. It can be taken apart and packed snugly to go by mail. Price 25 cents, or given free for 1 new subscriber, with $1.00, and 16 cents to pay postage when sent by mail.

DOLL'S HIGH CHAIR, 18 inches high.

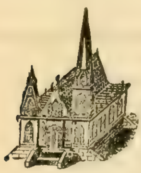


Each chair takes apart, and packs into a neat box. The seat is handsomely printed to represent cane-work. Every little girl will want one of these for her dollie. We will send it free, postpaid, for one new subscriber, with $1.00, or will sell it for 20 cts. and 10 cts. extra for postage. Or if you will send your papa's renewal and a new subscriber, with $2.00, we will give you both the chair and cradle. If you want them by mail, send 26 cts. to pay postage.

THE WORLD'S EDUCATOR.

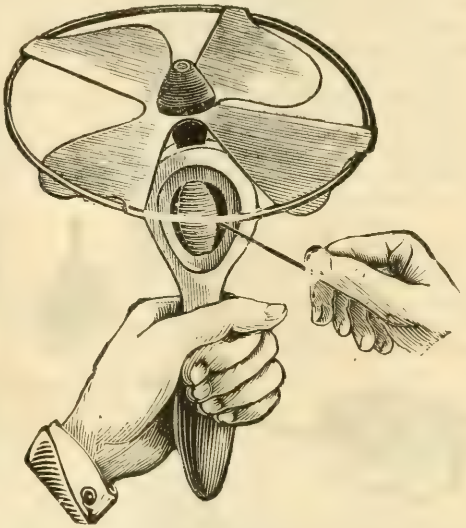


This game is a perfect treasure-box of knowledge and fun. It asks and answers the most difficult questions, and is equally adapted to both old and young. Amusement and education are most happily combined; 72 questions and answers on each card, and 10 cards go with it. When the knowledge on these is exhausted, more can be obtained. The box is handsomely lithographed. Size 15 x 7 inches. Price $1.00. Postage extra, 25 cts., if sent by mail. Given for 4 subscribers, with $4.00, and 25 cts. extra to pay postage.



Gothic Church. This interesting and instructive toy consists of 38 blocks, ornamented in colors, and of different shapes, so that out of them may be built a church as shown in the cut, 11 inches long, 10½ wide, and 16½ high. On the inside of the blocks which form the walls are printed Scripture texts; and on ceiling, the Lord's Prayer and Ten Commandments. All is put up in a very nicely ornamented box. Price $1.00, or given for 4 subscribers, with $4.00. Too heavy to go by mail.

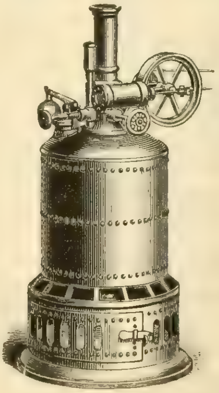
FLYING TOP.



This wonderful little toy has been sold as high as 75 cts. each in past years; has been sold by the thousand at 25 cts.; but we have got them so as to sell them for only 10 cents each, and 5 cents extra by mail. When you get used to it you can make the top fly 30 or 40 feet high. Always wind the string on to the left, to make it fly. Given postpaid for one new subscriber.

WEEDEN'S IMPROVED ENGINE.

This engine has been on the market for over four years, and is perfect in every respect.



So great a success has it proved that other makers have been induced to counterfeit in many ways. The genuine Weeden Engine is perfectly safe and practical.

DESCRIPTION OF ENGINE.

SIZE. Its size is 8½ x 4¼ inches.

SAFETY-VALVE. The engine has a perfect-working safety-valve, which makes it impossible for the boiler to explode. It is beautifully decorated.

STEAM WHISTLE. By referring to the cut, you will notice the location of the steam whistle. You will also see the valve by which the whistle is operated.

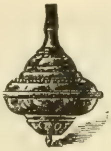
THE THROTTLE VALVE. One important feature of this engine is its throttle valve. No other amateur engine has this feature.

THE POWER OF THE ENGINE. The engine has sufficient power for running toy-machinery. So perfectly and so accurately is this engine made, that the *screw-nuts* on the cylinder-head, and the *rivet heads* on the boiler and fire-box are imitated (see cut).

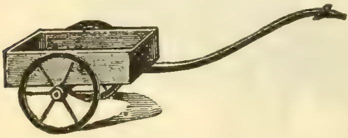
A Mechanical Curiosity. This engine is not only interesting to boys, but as an object of mechanical beauty and perfection it has great interest to engineers and practical machinists.

A German maker is manufacturing and selling in this country an engine which imitates some of the features of the Weeden. Although a trifle larger than the Weeden, it is poorly constructed, and is evidently made more to sell than to run. It is not warranted. *The Weeden is tested by steam, and every one leaves us in perfect running order.*

The boiler, filled once, will run it for half an hour. Price only $1.00. Postage 25 cts. extra by mail. Given free for 4 subscribers, with $4.00, and 25 cts. to pay postage.

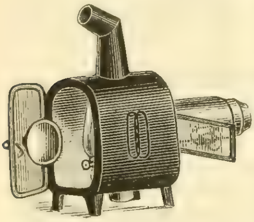


Humming Top. This is a splendid toy for the little folks; good size, handsomely decorated, and hums as it spins. Price 10 cents. By mail, 4 cts. extra, or given free, postpaid, for one subscriber, with $1.00.



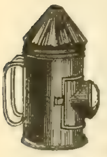
Ten-Cent Cart. The box measures 5 x 9, and is painted red, with A B C lettered on the side; wheels, 6 inches in diameter; a pretty big cart for a little money. Price 10 cts., or given for 1 subscriber. If sent by mail, it takes 20 cts. to pay postage.

MAGIC LANTERN.



Our magic lantern this year is better than ever. The cut does not show it exactly as it is. The body is wood; top and smoke-stack nickel plated. It has a tin lamp with glass chimney, brass burner and wick, and 2 lenses. It includes 12 slides, with four pictures on each, or 48 pictures in all. There is hardly any thing in the whole list that will please the little folks more than this. Directions accompany each lantern. For 4 subscriptions at $1.00 each, we will send it free. It can be sent safely by mail, for 35 cents for postage and packing, or may be sent by express or by freight with other goods. Price $1.00.

BULL'S-EYE DARK-LANTERN.



Price 15c. Postage, 10. A genuine watchman's dark-lantern, made of japanned tin, 4½ in. high, and 2½ in. in diameter; a bull's-eye glass, 2 in. across, and double handle on opposite side. Will throw a red, green, or white light. Will be sent free, postpaid, to any person sending **one** new subscription at one dollar.

NO. 1 IRON HAND-SLED.

Given for 2 Subscribers, with $2.00.

The runners are made of ½-inch half-round iron. The two knees are of the same, firmly riveted to the runners and the board, which is of basswood. Size, 24 inches long, 9 in. wide, and 5¼ inches high. They are beautifully painted and decorated by hand, striped and varnished. They are so strong that it is almost impossible to break them, and yet the price is little if any more than the cheap all-wood sleds which break down with much of a load. Price 50 cts., or given for 2 subscribers and $2.00.

No. 2 Iron Hand-Sled. This corresponds with No. 1, but is larger. Size, 26 in. long, 9½ in. wide, 6 in. high. Sold for 65 cts., or given for 3 subscribers with $3.00.

No. 14 Iron Sled. This is the same in appearance as No. 6 following, except that it has only two knees. Size, 28 in. long, 9½ wide, and 6 in. high. Sold for 75 cts., or given for 3 subscribers with $3.00

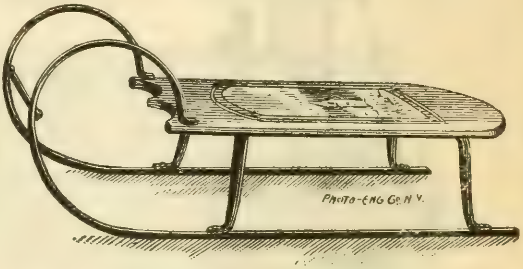
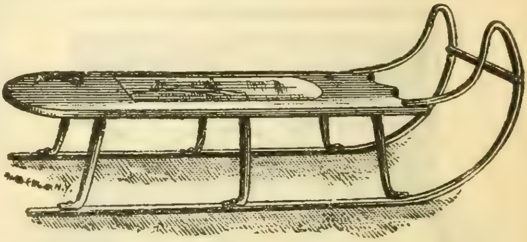


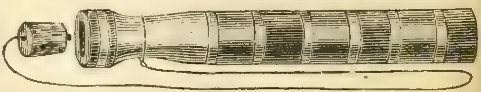
PHOTO-ENG Co. N.Y.

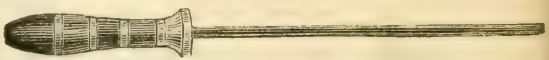
No. 13 Iron Sled. This you see, from the cut above, is a different style of runner. It is intended for a girl's sled. Size, 28 in. long, 9½ wide, 6 high. Sold for 75 cts., or given for 3 subscribers with $3.00.



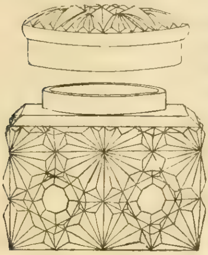
No. 6 Iron Sled. This is made of $\frac{9}{16}$-inch half-round iron, and has 3 knees, as shown. Very handsomely finished. Size, 32 in. long, 10 in. wide, 6 in. high. Price $1.00, or given for 4 subscribers and $4.00.

Toy Iron Sleds. These are made and finished exactly like the above, but smaller, being 15 inches long, 5 in. wide, and 3½ high. They are intended for the little folks to draw their playthings around on, in or out of doors. Made of ⅜-in. half-round iron, and are little beauties. We have two styles, either "Pointed" or "Bow" nose, like No. 14 above. Price 35 cts. each, or given for one new subscriber and 10 cts. extra. These toy sleds can go by mail for 25 cts. extra for postage, but the others must be sent by express or by freight with other goods.

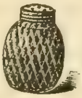




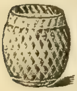
Pop-Pistol. When we were boys we used to make pop guns out of elder bushes, and chew up paper wads to shoot. Sometimes we made them of goose-quills, using a slice of a raw potato for ammunition. Well, some enterprising Yankee has conceived the idea of a pop-gun made of wood, to sell for a nickel. See cut below. Now, every boy who does not have access to the elders and goose-quills may still have a gun. The load is always in, and is a cork. The cork that flies is tied to the gun, so you can't lose it. It is put in the opposite end each time. You must shove the ramrod in quickly to make it pop. Price 5 cents; by mail, 3 cents extra, for postage.



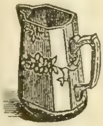
Hobnail Inkstand. This is of heavy glass, just twice the size of the illustration. It imitates a cut-glass inkstand, which, if genuine cut glass, would be worth $1.00 or more. We have them in crystal, amber, blue, green, and canary. Price 10 cents each. As they weigh over ½ lb. each, the postage, securely packed, will be 11 cents. Sent postpaid for one new subscriber and $1.00.



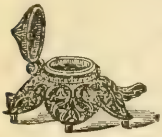
Venetian Glass Individual Salter. These are perfect little beauties, assorted colors. You can form little idea of their beauty from this cut. Price 10 cents each. Packed safely to mail, 5 cents extra for postage.



Venetian Glass Toothpick or Match Holder. Same kind of glass as above, price 10 cents. Postage, 5 cents. extra. Either sent postpaid for one subscription and $1.00.

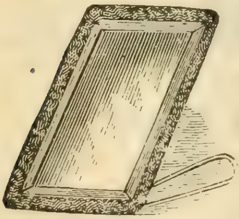


China Pitcher. Little beauties, 3½ inches high; holds ⅓ pint; decorated. Price 10 cts. Packed safely to mail, 6 cts. extra, or sent free postpaid for one subscriber, and $1.00.

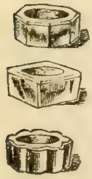


Fancy Metal-Covered Inkstand; bronze, with glass inkwell. Price 10 cts. By mail, postpaid, 12 cts. extra, or sent free postpaid for 1 new subscriber and $1.00.

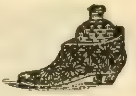
Plush Beveled glass Mirror. Size 4¾x6¾ inches, with adjustable handle. Assorted colors of plush. Price only 40 cts. each. By mail, 12 cts. extra, or given free postpaid for 2 subscribers.



25 - Cent Plush Mirror. This measures 3x5 inches. Plush edges, adjustable handle, bevel glass; only 25 cts., or given for one new subscriber with $1.00, and 10 c. to pay postage, if sent by mail.

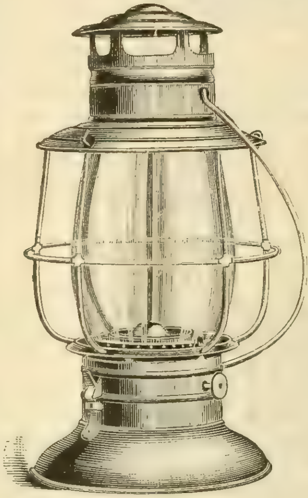


Individual Salt-cellars assorted patterns. These are put up, one dozen in a box, one pattern only in a box. It is very convenient to have a dish of salt beside each plate at the dinner-table, especially when they cost less than 2 cts. each. Price 20 cts. per dozen. If sent by mail, 30 cts. extra for postage. Given for one new subscriber, with $1.00, and 30 cts. to pay postage.



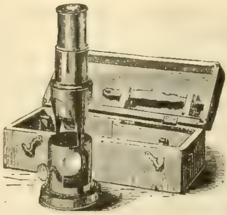
A Glass Slipper, with fancy bottle Perfume. These are assorted colored glass shoes, in which is nestled in cotton a bottle of perfume, made to imitate a basket. The glass is worth the price as a novelty, and the perfume is thrown in. Price 10 cts. Packed to go by mail for 6 cts. extra, or sent postpaid for one subscriber, and $1.00.

BRILLIANT LANTERN.

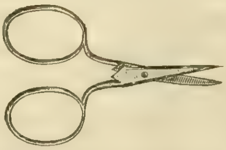


For convenience, durability, and cheapness, we have never found a lantern that compares with the one in adjoining cut. It will brave the strongest gust of wind without blowing out. It has a very large bail, making it easy to carry it on the arm. It is short, and not so inconvenient as a tubular. The top part hinges back so the globe may be removed and cleaned. It also hinges below the globe, making it very easy to light and fill. It has a good-sized fount that will hold at least a pint of kerosene oil, which is the fuel used. It takes a ⅝-inch lamp-wick. Price 60 cts., or given free for 2 new subscribers.

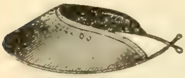
MICROSCOPES.



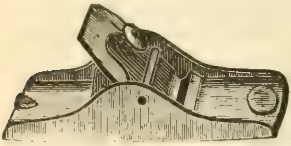
These are real compound microscopes, and quite a different thing from the double and single magnifying glasses so often called by that name. They are only for minute objects, such as the eye or the sting of the bee. It magnifies 40 diameters. It is a very neat instrument, carefully packed in a mahogany box, with the necessary implements for the work of taking regular lessons in studying the insect world. You will find, with it, that a single bee will make a study for a long time. Sent by mail for $2.40; 15 cts. less when sent by freight or express, or it will be sent postpaid for 8 subscribers.



Big-eye Lace Scissors. The cut is just ½ size. We had these made especially to our order, to be used in clipping queens' wings; and by getting a quantity we got the price down so as to be able to sell them for 25 cts. each. By mail, 2 cts. each extra, or given free postpaid for one new subscriber. We still have also some with a little bigger eyes at 35 cts. each. By mail, 37 cts., or given for one new subscriber, and 10 cts. extra.

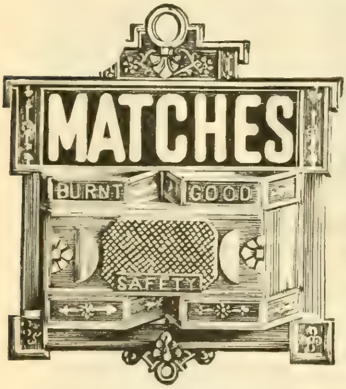


Eye-Shade. An excellent protection to the eyes when sitting in a bright light. Usually sold for 25 cts. Our price, 10 cts. By mail, 4 cts. extra, or sent free postpaid for one subscriber, and $1.00.



Iron Plane. At first glance you might take it for a toy plane; but if you try it on a board you will find it is a plane in reality. They will sharpen a lead-pencil beautifully, trim up a wood-cut or electrotype, take the corners off a rough box, reduce the width of a board, and do it all in a workman-like and finished manner; and when they need sharpening, the bit is taken out or adjusted securely, by simply turning a single screw with the finger and thumb. Price 15 cts By mail, 6 cts. extra, or sent free postpaid for one new subscriber, and $1.00.

LUMINOUS MATCH-SAFE.



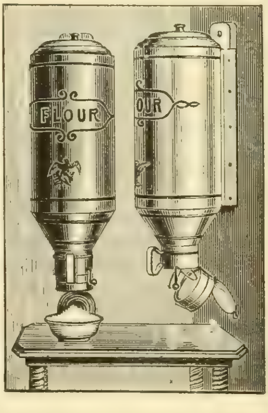
This is a neat safe with 2 pockets as shown. The word "Matches" being phosphorescent it can be plainly seen in the dark. Price 15 cts. By mail, 4 cts. extra, or sent free postpaid for one new subscriber and $1.00.

A SPECIAL PREMIUM FROM A. I. ROOT HIMSELF.

To the friends who have gardens, I wish to refer to the description of the Ignotum tomato, on page 856 of our issue for Nov. 1, 1888; also see the article from the Michigan Agricultural College, in our issue for Nov. 15. It seems pretty certain that the Ignotum tomato, all things considered, now stands in the front rank in the way of tomatoes. It may be a pretty large claim to call it the best tomato in the world, but you can be your own judge. We have about 1 lb. of the seed, and, so far as I know, there is not another pound to be had in the world. I have already refused several applications for the seed. It is not for sale at all; but I have decided to give it away to the readers of GLEANINGS for 1889. Therefore every one who subscribes for next year, or who has already subscribed, can have a few seeds of the Ignotum tomato by simply asking for it. If you have already subscribed for next year, simply mention it on a postal card, and say you want a packet of seed of the Ignotum tomato. We had over 8000 subscribers in 1888. Of this number, perhaps half are so situated as to be able to test the new tomato; therefore we have decided to make the 1 lb. into 5000 packets. We have not figured up just how many seeds each one will get; but I can whisper in your ear, that, if you have a greenhouse, or even a good window for house-plants, you may sow the seed now; and when the plants get large enough, chop them up into cuttings. These cuttings will make splendid plants, and the tomato roots easily. Then if you have some plants for sale in the spring, I presume there are plenty who will take them off your hands at good figures. Remember the sharp friend who recently got $50.00 for his crop of Grand Rapids lettuce-seed. Fifty dollars from an outlay of only 75 cents! Aren't you glad you live in the country and have a garden?

TYLER'S FLOUR-RECEPTACLE

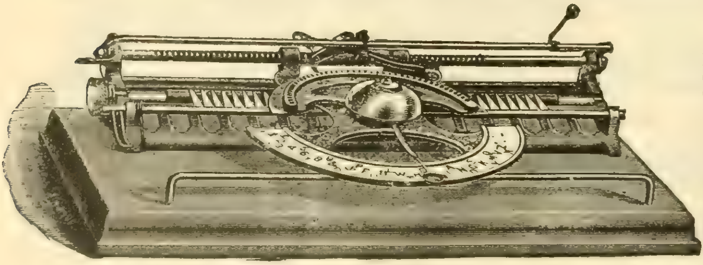
A MUCH-NEEDED HOUSEHOLD CONVENIENCE.



This is the most convenient arrangement for flour that we have ever seen. It holds just a 49-lb. sack of flour. It is to be hung on the wall just above your table. When you want some flour simply place your pan under it, open the lid on the bottom and turn the crank and you get your flour already sifted. It is simple, neat, and effective, and not expensive either. Price $2.75 each, crated ready for shipment, or given free for 8 subscribers, with $8.00.

THE WORLD TYPE-WRITER, ONLY $8.00,

AND GLEANINGS ONE YEAR GIVEN FREE.



This little machine, I believe, is one of the triumphs of the age. With it an average person can, in a week, write nearly as fast as he can with a pen, and with less fatigue, and how much neater the work is when done. The cost, too, is so low that almost every one can have one, even though you have nothing more than your private correspondence to write.

We have 6 in use in our office, and you now see very little pen work going out of our office. Price of this machine is $8.00, charges prepaid, or sold for $7.50, receiver paying charges. GLEANINGS one year, and a typewriter, $8 00, receiver paying charges; or a typewriter given free, prepaid, for 30 subscribers, with $30.00.

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CONVENTION NOTICES.

The Nebraska State Bee-Keepers' Association will convene at Lincoln, Jan. 9, 10, and 11, 1889. J. N. HEATER, Sec.

The annual meeting of the Ontario Bee-Keepers' Association will be held in Owen Sound on the 8th and 9th of January, 1889.
W. COUSE, Sec'y.

The twentieth annual convention of the New York State Bee-Keepers' Association will be held at the City Hall, in Syracuse, N. Y., Dec. 11, 12, and 13, 1888. A very interesting programme is being prepared, and questions of great importance will be discussed by many of the most prominent bee-keepers of America. A cordial invitation is extended to all interested in the advancement of our pursuit.
G. H. KNICKERBOCKER, Sec'y.

The Michigan State Bee-Keepers' Association will hold its annual meeting at Jackson, Mich., Dec. 12 and 13. A cordial invitation is extended to every reader of GLEANINGS and their friends. Come out, friends, and let us profit by our past experience in reasoning together, and prepare for the rich harvest that every thing points to another season. Let "never despair" be our watchword, and I know that the faithful will be rewarded. Again I say, come, and have a feast of reason.
GEORGE E. HILTON, President.

Wants or Exchange Department.

Notices will be inserted under this head at one-half our usual rates. All ad's intended for this department must not exceed 5 lines, and you must SAY you want your ad. in this department, or we will not be responsible for any error. You can have the notice as many lines as you please; but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale can not be inserted under this head. For such our regular rates of 20 cts. a line will be charged, and they will be put with the regular advertisements.

DO you wish to exchange extracted honey for supplies? If so, write at once to
5tfdb CHAS. H. SMITH, Pittsfield, Mass.

WANTED.—To exchange 250 colonies of bees, for horses, mules, wagons, buggies, and 4 h. p. engine, or any thing useful on a plantation.
21tfd ANTHONY OPP, Helena, Phillips Co., Ark.

WANTED.—To correspond with parties having hickory-nuts, pecans, honey, etc.
EARLE CLICKENGER, No. 119 South Fourth St.,
23-24d Fruit and Produce. Columbus, O.

WANTED.—To exchange an apiary and a small supply business, for land, or any thing of value. A good opening. Write for particulars to
E. T. ABBOTT, St. Joe, Mo.

WANTED.—To exchange a portable saw-mill with 54-in. saw, for machinery for making V-grooved sections; also fdn. mill, etc.
GEO. RALL, Frenchville, Wis.

WANTED.—To exchange for extracted honey, a 10 h. p. horizontal engine, worth $200. I will give somebody a rare bargain. Speak quick.
15tfdb C. H. SMITH, Pittsfield, Mass.

DADANT'S FOUNDATION FACTORY, WHOLESALE AND RETAIL. See advertisement in another column. 3btfd

The publisher of THE AMERICAN GARDEN, of New York, wishes to announce that the price of that best of all horticultural magazines is to be raised on Jan. 1st to $2.00 a year, on account of further great improvements. Subscribe now at $1.00, and so save $1.00. Price in club with GLEANINGS, $1.85; all issues sent from date to end of 1889. Or send **10 cts.** *for* **two months.** *THE AMERICAN GARDEN covers the whole field of fruit, flower, and vegetable culture, greenhouse management, window-gardening, lawn-planting, etc.*

Address E. H. LIBBY, Publisher, 751 Broadway, New York.

DISCOUNTS FOR EARLY ORDERS.

It has been our custom in the past few years to offer discounts during the fall and winter on many articles in our catalogue, so as to divert as much as possible of the spring trade into those early months, so that we may not be so crowded during the spring months that we can not attend to orders promptly. We intend to make the discount sufficient to make it an object to buy early, so that, even if you have to borrow the money, it will pay you to do so, providing you know pretty nearly what your wants in the spring will be. It is best, too, to get your stuff early, so as to have it nailed together and painted during the long winter evenings and dull times when you have nothing else to do; then it will be all ready when you need it in the spring. Of course, to offer these inducements cuts down our margin on the goods to a small basis; but we prefer to do so rather than have the trade come all at once, and then perhaps be obliged to disappoint many of our customers by not shipping promptly. Then, too, we have the machinery all ready, and it might as well be running as not. Below we enumerate the articles on which we will allow a discount, in two lists: During December, discounts will be as follows:

8 PER CENT.

Entrance Guards, Comb Fdn., Fdn. Mills, Parker's and Gray's Fdn. Fasteners, Blood Rollers, Wire-Imbedders, Wired Frames, put up and in flat, with and without Fdn.; tinned Wire, tin Bars, Carlin Fdn. Cutters, plain Division-boards, Honey-extractors, Broken-comb Baskets, Brood-frames, Metal Cornered, all Wood and Reversible; also Metal Corners, Slatted Wood-zinc and all-zinc Honey-boards; Sections and Wide Frames.

4 PER CENT.

Alighting-boards, Chaff Cushions; Circular Saws and Saw-mandrels; Star Saw-set; Comb-holder; Comb-buckets; Chaff Division-boards; Enamel Cloth and Sheets; material for Extractors; Bee-feeders; Files; Barnes Sawing-machines; Wire Nails; Bee-hives, all kinds, put up and in flat; Combined Crates, T Supers, and tin Rabbets and T tins; Honey-knives; tin Separators; Clark Smokers; Wax-extractors; Daisy Wheelbarrows.

No discount on articles not mentioned in either of the above lists. In January, 6 and 3 per cent respectively; in February, 4 and 2 per cent. After Feb., 1889, no discount. **A. I. ROOT, Medina, O.**

SPECIAL NOTICES.

ORDER EARLY.

REMEMBER that, to avail yourselves of the 8 and 4 per cent discount on bee supplies (see notice elsewhere), your orders *must* be received during the *present month*, and that, after that, the discounts stand 6 and 3 per cent respectively. Don't put it off any longer if you wish to save money.

BARGAINS IN FDN. MILLS.

WE have to sell, the following described fdn. mills, which we consider a bargain at the prices we ask.

One twelve-inch latest improved, of our make, that has made only a few pounds of foundation, and was exchanged for a 14-inch mill. We offer this for $25.00.

One 9-inch Olm mill. This mill was made a number of years ago, but has been used very little, and has been kept in good condition. As the party who owned it had so little use for it we took it in exchange for other goods, and offer it for $12. When new it doubtless sold for $25. It has double gear at both ends, and a back gear besides, and is a rare bargain at this price.

A customer in Pittsfield, Maine, after buying one of our 10-inch mills to make fdn. for himself and neighbors, suddenly changed his plans, and had no use for the mill. It has made only about 150 lbs. of fdn., and is virtually as good as a new mill. We offer it for sale at $15.00. Who will be first to secure this bargain?

THE WINTER CARE OF

HORSES and CATTLE.

THE MOST HUMANE AND

PROFITABLE TREATMENT.

BY T. B. TERRY.

Although the book is mainly in regard to the winter care of horses and cattle, it touches on almost every thing connected with successful farming—

SHELTER, COMFORT, FEEDING, EXERCISE, KINDNESS, DIFFERFERENT SORTS OF FEED, A FULL TREATISE ON THE MOST ECONOMICAL WAY OF SAVING MANURE.

A full description of Terry's model barn is also given.

PRICE: 40 Cts.; by Mail, 43 Cts.

A. I. ROOT, Medina, O.

Maple Sugar and The Sugar-Bush

THIS IS A NEW BOOK BY

PROF. A. J. COOK,

AUTHOR OF THE

BEE-KEEPER'S GUIDE, INJURIOUS INSECTS OF MICHIGAN, ETC.

The name of the author is enough of itself to recommend any book to almost any people; but this one on Maple Sugar is written in Prof. Cook's happiest style. It is

PROFUSELY ✻ ILLUSTRATED,

And all the difficult points in regard to making the very best quality of Maple Syrup and Maple Sugar are very fully explained. All recent inventions in apparatus, and methods of making this delicious product of the farm, are fully described.

PRICE: 35 Cts.; by Mail, 38 Cts.

A. I. ROOT, Medina, O.

KIND WORDS FROM OUR CUSTOMERS.

The carpet-sweeper came Oct. 30. Many thanks for promptness. Mother says it is a beauty, and is highly pleased. C. E JENKINS.

Bryan, Tex., Nov. 2, 1888.

THE ALLEY TRAP.

The Alley queen-trap came all right. I would not take $1.00 for it, if I could not get another. I caught a good many black drones with it. IRA R. GREEN.

Unadilla, Otsego, Co., N. Y.

GLEANINGS BETTER EVERY YEAR.

I received all of my goods in first-class order. I think those sections are as nice as I ever saw. GLEANINGS grows better every year. May God help you in your good work. S. TOMPKINS.

Tarrytown, N. Y., Nov. 14, 1888.

Mr. Root:—May God bless you for what you have said in Our Homes for September 15th. I always find true, sweet, Christian counsel in Our Homes, but never any thing that went straight to the heart as that did. P. M.

Goodluck, Tex., Sept. 27, 1888.

GLEANINGS, AND ITS VALUE TO THE SUBSCRIBER.

Friend Root: - Send me GLEANINGS another year. Aside from helping me to manage the bees, it has been the means of helping me to sell a number of swarms this summer. This is the way I do it: If a person says any thing about buying bees, I give him a copy of GLEANINGS (not one that reads like Aug. 1st, page 603, nor Aug. 15, page 655, but a good cheerful one), and I can make a sale every time; and so it pays me many times its cost, to take GLEANINGS. C. B. JACKSON.

Eau Claire, Wis., Aug. 27, 1888.

GLEANINGS.

GLEANINGS has proven to be a very good investment—in fact, I could not well get along without it. I find therein a great many points of interest to a person who keeps bees. I also find its contributors to be among the best—men who are experienced in bee culture, and can be relied on. We all like GLEANINGS in all its departments, and only wish it were published weekly. I am one of your A B C scholars, and have been pretty successful since I adopted the movable-frame hives, and began taking your publications. E. S. MEAD.

Olivett, O., Oct. 23, 1888.

THE HOME PAPERS.

When I first began reading GLEANINGS (two years ago) it struck me as rather odd that the editor should speak so openly about his family affairs in articles intended for public perusal, and must own that I did not just fancy it. There, don't let that ruffle your feathers now, for I am going to say, just as quickly as I can get it written, that I have *changed my mind*, and that now I enjoy all articles with A. I. Root's name signed to them, for they seem like letters from an old friend, in all of whose affairs I take an interest.

MRS. C. B. HAYWOOD.

Ypsilanti, Mich., Aug. 16, 1888.

A KIND WORD INDEED.

Inclosed find the pay for GLEANINGS one year, to be sent to ——— ———. If GLEANINGS will do him as much good as it has myself, I shall think the money well spent. When I began reading the Home Papers I was a stranger to the Lord; but I became interested in them, and it caused me to reflect, and I have changed my way of living. I have united with the church, and am happy to-day that I can say I believe I am on my way to glory. May the Lord spare you many years to go on in your good work, and give us more Home talks.

Morristown, Ind. MAD. TALBERT.

[May the Lord be praised, friend T., for the testimony you give us. When I hear such words as yours, I feel overwhelmed with a sense of my unworthiness, to think the great Master has seen fit to bless, in the way he has done, such weak, fitful, poor work as mine has been. May God bless you for your kind words.]

That "Black and Hybrid Queen Department" is a grand column. I received more orders for queens than I could fill. J. M. KALE.
Newton Falls, O., Oct. 5, 1888.

The goods I ordered were received in good condition—every thing satisfactory. The 5-cent wash-basin is just the thing for the shop, and cheap too. CHESTER OLMSTEAD.
East Bloomfield, N. Y.

I have taken the premium wherever I have exhibited. I feel proud of it. Thanks to A B C and the nice white sections, also to Novice's extractor, for they do say that my honey is finer, and put up in better condition, than any other on this coast.
Reno, Nev., Nov. 4, 1888. E. A. MOORE.

I received my goods all right, and GLEANINGS also, which I prize very highly. T. HADDEN.
Matteawan, N. Y., Nov. 21, 1888.

L. L. LANGSTROTH.

I am very much pleased with the improvements in the new edition of A B C. L. L. LANGSTROTH.
Dayton, O., Nov. 19, 1888.

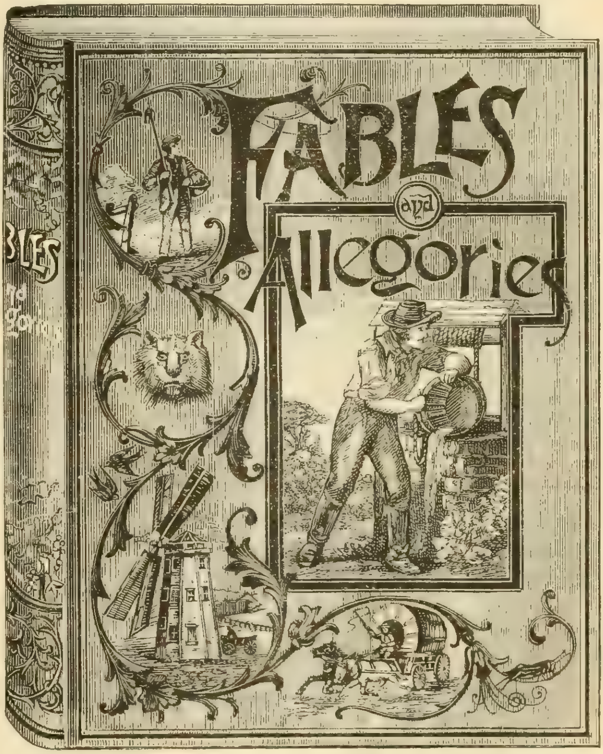
THE WORLD TYPE-WRITER.

The World type-writer is just received, and I have tested it, and will say that we are well pleased with it. It is full of real business. If any one has little or much writing to do, he will find it most delightful. The more I use it, the better I like it.
Hornby, N. Y. H. W. BIXBY.

FABLES AND ALLEGORIES;

OR, NEW LIGHTS ON OLD PATHS.

This is a most magnificent book by Chas. Foster, the author of the Story of the Bible. It measures 8 by 9½ inches, by 1⅝ inches thick, and weighs 4 lbs. It is printed on very heavy toned paper, with heavy gilt edges; is bound in light-blue cloth, embossed in black and gold; contains 512 pages and 350 original illustrations. The subject-matter is a series of fables and allegories, each giving a most wholesome moral lesson that very few of us, old or young, do not need. This book would be an ornament on the center-table in any home; and if read and pondered, and its lessons put into practice, many hearts would become more lovely, and many homes more pleasant and beautiful. The lessons taught are made much more pungent by the pictures accompanying, as in many cases the story is more than half told in the pictures. So large and nice looking a book is rarely sold by agents for less than $4.00. Our price is $2.00. By mail, 32 cts. extra, or given for 6 subscribers, with $6.00, and 32 cts. to pay postage, if sent by mail. Will sell two for $3.50, three for $5.00; five or more, at $1.50 each. We have sold nearly 100 the past two years.



A. I. ROOT, Medina, Ohio.

LITHOGRAPH LABELS

In 12 Colors, at $2.00 per 1000.

The 12 colors are all on each label. They are oblong in shape, measuring 2⅞x3⅝. They are about the nicest labels we ever saw for glass tumblers, pails, and small packages of honey. We will mail a sample, inclosed in our label catalogue, free on application, and will furnish them postpaid at the following prices: 5 cts. for 10; 35 cts. for 100; $1.20 for 500; $2.00 for 1000. A. I. ROOT, Medina, O.

BEES, Queens, Hives, Given Comb Foundation, Apiarian Supplies, German Carp, Small-fruit Plants. Send for catalogue free. E. T. Flanagan, Belleville, Ills.
1-24db

BEES and GARDENING

go well together. Bees fructify the blossoms. The garden fruits and flowering plants furnish the bees with food. The best of all gardening periodicals, THE AMERICAN GARDEN, of New York—a large, handsome, illustrated monthly magazine of fruit, flower, and vegetable culture—in "club" with GLEANINGS for $1.85, or alone for $1.00. Price to be raised on Jan. 1 to $2.00 a year. TWO MONTHS FOR 10 CTS. FOR INTRODUCTION. E. H. LIBBY, 751 Broadway, N. Y.
☞In responding to this advertisement mention GLEANINGS.

HONEY COLUMN.

CITY MARKETS.

NEW YORK.—*Honey.*—Fancy white. 1-lb., 16@17; 2-lbs., 13@14. Fair white 1-lb., 14@15; 2-lbs., 11@12. Buckwheat, 1-lbs., 11@12; 2-lbs., 10. Extracted white, 8@9. Extracted buckwheat, 6@7. One lb. white and 1 and 2 lbs. buckwheat are in very good demand, and the stocks are light. Little demand for 2-lbs. white, with good stock in the market.

Beeswax dull at 22½@24.

Nov. 24. HILDRETH BROS. & SEGELKEN,
28 & 30 West Broadway, New York.

KANSAS CITY.—*Honey.*—Market a little slow. We quote, white 1-lb. comb, 17; fair, 14; California white, 17; do., 2-lb., 15. Extracted, white, do., 7½; amber, do., 7; *Beeswax*, none in market.

Nov. 22. CLEMONS, CLOON & CO.,
Kansas City, Mo.

ALBANY.—*Honey.*—Market slow, as dealers are more generally supplied than they were. Prices unchanged, as the stocks are not large.

Nov. 22. H. R. WRIGHT,
Albany, N. Y.

ST. LOUIS.—*Honey.*—We have nothing special to report on honey. The demand is good, and stocks are still light. W. B. WESTCOTT & CO.,

Nov. 24. St. Louis, Mo.

DETROIT.—*Honey.*—Best white comb, 17@18, with better supply. Sales rather slow. Extracted, 8@9 for light-colored. *Beeswax*, 22@23. M. H. HUNT.

Bell Branch, Nov. 23, 1888.

COLUMBUS.—*Honey.*—No change from last quotations: not much white honey on the market, and we think good white stock would readily sell well.

Nov. 22. EARLE CLICKENGER,
Columbus, O.

CINCINNATI.—*Honey.*—No change since our last. Extracted honey brings 5@8 on arrival, and best qualities of comb honey bring 14@16 in the jobbing way. *Beeswax* is in good demand, and brings 20@22 on arrival, for good to choice yellow.

Nov. 21. CHAS. F. MUTH & SON,
Cincinnati, Ohio.

ST. LOUIS.—*Honey.*—Market almost bare of stock, especially strained and extracted. We quote, comb, 12@14c; strained, 5@6; cans, 7@8½. *Beeswax.*—Prime, 20c. D. G. TUTT GROCER CO.,

Nov. 22. St. Louis, Mo.

HONEY
FOR SALE
CHEAP.
Address
JAMES HEDDON,
DOWACIAC, MICH.
Mention Gleanings. 20tfdb

A DOLLAR FREE TO EVERYBODY. A dollar saved is a dollar made. The best of all horticultural journals, **THE AMERICAN GARDEN**, is to be still further greatly improved, and the price advanced on Jan. 1st to $2.00 a year. Subscribe now at $1.00 and get all the issues from date to end of 1889. With GLEANINGS for $1.85. TWO MONTHS FOR 10 CTS., FOR INTRODUCTION. E. H. LIBBY, 751 Broadway, N. Y.

☞In responding to this advertisement mention GLEANINGS.

MOISTURE.

If you would know the effects of moisture in bee-cellars, how injury to the bees from its presence may be avoided, or how to have dry cellars, read the Nov. No. of the **Bee-Keepers' Review.** It gives, upon these points, the views and experience of Jas. Heddon, H. R. Boardman, Dr. C. C. Miller, J. H. Martin, Eugene Secor, O. O. Poppleton, Prof. A. J. Cook, R. L. Taylor, and S. Corneil. Besides this, there are the usual lively, wideawake, pointed editorials upon current topics, also appropriate extracts pertaining to the special topics under discussion. The Dec. No. will discuss "Sections and their Adjustment on the Hives."

Price of the REVIEW, 50 cents a year. Samples free. Back numbers can be furnished.

The REVIEW and "The Production of Comb Honey," for 65 cts. Address

W. Z. HUTCHINSON,
613 Wood St. **Flint, Mich.**

☞In responding to this advertisement mention GLEANINGS.

→1889←
NEW CATALOGUE
MAILED IN DECEMBER.

Enlarged, and prices reduced. It quotes LOW SPECIAL FREIGHT RATES to many Southern points, especially to points in *TEXAS*.

Southern bee-keepers, send for it NOW.

23-24 **J. M. JENKINS, Wetumpka, Ala.**

☞In responding to this advertisement mention GLEANINGS.

FREE! Bee-Keepers' Club List of Newspapers and Magazines (Club rates). **SAVE MONEY** by sending postal card for it.
23-24d E. H. COOK, Andover, Conn.

DADANT'S FOUNDATION FACTORY, WHOLESALE AND RETAIL. See advertisement in another column

B. J. MILLER & CO.,
NAPPANEE, - ELKHART CO., - IND.,
MANUFACTURERS OF
BEE-HIVES AND SUPPLIES.

We give 10 per cent discount on bee-hives and sections in November and December. 22tfdb

SEND FOR PRICE LIST.

☞In responding to this advertisement mention GLEANINGS.

GREAT REDUCTION IN LEAD-PENCILS.

The bottom has fallen out of the combination on lead-pencils, so that we can sell the same pencils at just ½ the price we have sold them.

6-inch Plain Cedar Pencils. 5 cents per dozen. Postage, 3 cents extra; 55 cents per box of 12 dozen. By mail, 21 cents extra. These are the same that we have been selling for years at 10 cents per dozen. Eagle Pencil Co.'s make.

Plain Cedar Pencils. 7¾ inches long, Dixon's make. Price 7 cents per dozen; 75 cents for 12 dozen. By mail, 3 cents per dozen extra, or 32 cents per gross for postage.

Polished Cedar Pencils, with inserted **Rubber Tip.** Price 10 cents per dozen. Postage 4 cents extra; $1.10 for 12 dozen; postage 35 cents extra. These are Eagle Pencil Co.'s make. We have been selling them for 3 cents each; 20 cents per dozen, but are now able to offer them as above.

PATENTED
CLASPERASER

Pilot Pencils. These are finely polished, and as good pencils as are made. We have 2 sizes—$\frac{9}{32}$ inch and $\frac{7}{32}$ inch in diameter. Price 3 cts. each; postage, extra, 2 cts. Thirty cents per dozen; by mail, 5 cts. extra

A. I. ROOT, Medina, Ohio.

GLEANINGS
IN
BEE CULTURE.
DEVOTED·TO·BEES·HONEY·&·HOME·INTERESTS
F.A. Whiting

Vol. XVI. **DECEMBER 1, 1888.** **No. 23.**

TERMS: $1.00 PER ANNUM, IN ADVANCE; 2 Copies for $1.90; 3 for $2.75; 5 for $4.00; 10 or more, 75 cts. each. Single number, 5 cts. Additions to clubs may be made at club rates. Above are all to be sent to ONE POSTOFFICE.

Established in 1873.
PUBLISHED SEMI-MONTHLY BY
A. I. ROOT, MEDINA, OHIO.

Clubs to different postoffices, NOT LESS than 90 cts. each. Sent postpaid, in the U. S. and Canadas. To all other countries of the Universal Postal Union, 18 cts. per year extra. To all countries NOT of the U. P. U., 42 cts. per year extra.

THE TWO METHODS OF SECURING COMB HONEY.

C. C. MILLER REPLIES TO G. M. DOOLITTLE.

FRIEND Doolittle, I'm a little afraid we're getting somewhat scattering in our firing. Possibly we're not agreed just what we're fighting about. As I understood it, the original point in dispute was, "Do bees work as well over dummies as over brood-frames?" Let us first see just where we stand with regard to that. Before clinching for the fight, however, I feel very much like saying that I have just re-read your article on page 633, and I must say that you have a well-arranged plan, and one hard to beat for good results. When I used wide frames I worked on somewhat the same plan; and, as I said on page 35 of "A Year Among the Bees," I say now: "I am not sure whether I can do any better by any other system, if I do not take into account the item of labor." You, however, have the advantage of single tiers instead of double tiers in your wide frames. But, to the subject in hand.

In reply to my question, "Don't the bees commence over the brood first?" you reply, page 865, "Most assuredly they do, for that is bee nature." Well, I'm not opposed to your giving bee nature as the reason, so long as we are agreed as to the fact, and I'm not sure that there's any thing at issue between us, unless you have the idea that, after they *have* started, they'll work just as well somewhere else as over the brood. I think that might be settled in this way: Put a given number of partly filled sections immediately over the brood, and the same number of precisely similar sections over the dummies, and see if those over the brood will not be completed first. Of course, it is possible to so crowd them that all will be carried to completion at an equal rate; but if there is any difference I feel confident those over the brood will never be last completed.

I must modify my answer, that heat alone made the difference between your bees and mine as to working over dummies. An additional reason, I think, is that your bees were crowded more than mine; in fact, I suppose they were crowded so that they must work over dummies, or some of them not work at all. And right here is a chance for a lively controversy as to which is better, to crowd bees so that they will be obliged to spread out where they would not otherwise care to go, or to stretch them apart, so to speak, so they will fill a larger space than they otherwise would.

Right here I think I shall yield to the temptation to give the views of a very bright bee-keeper as he has privately expressed them to me. After saying that Doolittle has handled the subject unusually well, he says: "It seems to me that he has omitted one point; viz., that of the rapid increase in the numbers of a colony at the time we are adding cases of sections. By the time that it is necessary to add another case, the hive is *crowded* so that there are bees enough to fill it, and fill it to advantage. Perhaps Mr. Doolittle would say that there has been a loss because room was not given before the hive was crowded. *Perhaps* there has been. This question of the *elasticity* of a colony, so to speak, has never been touched upon, that I know of. What I mean is this: If a colony is working in a given space, will it work to better advantage if the space be enlarged, or if it be diminished? In other words, is there an exact space in which a colony of bees can work to the best advantage, this space being proportionate to the size of the colony, or can the space be varied to some extent without a loss; and, if so, about how great is this extent? About what is the working elasticity of a colony, to how great an extent is its adaptability to space without incurring a loss? I think you get the idea. If the working elasticity of a colony is small, then the point of Mr. Doolittle is well taken. If it is large, equal to a whole case of sections, it is of no account, except as it applies to the matter of unfinished sections at the end of the season. Even if the elasticity of a colony is *not* equal to a whole case, the question may be raised, if Mr. Doolittle's way is the best, on account of the extra time required, especially does it count in a honey-shower, and the one thing to decide is, how shall we secure the greatest results with the least expenditure of capital and labor?

I'm not sure but I'm a little bit rambling in this article, for I've got away from the topic; but I will touch upon just one more point. Friend D. says: "Then why does he talk as he does of the sections being filled with warm air, the same as we talk of the room we live in being thus warm? The warmth is held inside of the cluster of bees, not inside of the hive, etc." I know very well that the heat of the cluster is necessary for work, but I also know that *the cluster will not go* into that part of the hive where the warm air of the hive (not of the cluster) is allowed to escape. Or, in plainer terms, the bees will not work in that part of the hive where it is too cold. I know this as the result of observation in hundreds of cases. In my turn I feel a good deal like asking you what you mean by talking as if you thought the protection of the hive was of no account. The warmth of the cluster and of the hive too is needed, just as we need the heat both of our clothing and of the room we live in.

You've started, friend D., to discuss tiering up, and I'm not sure but that is a valuable field, but I can't touch it this time. C. C. MILLER.

Marengo, Ill.

You both have suggested some important questions, and it is evident already that some facts are coming to light. It seems to us that friend Doolittle lays too much stress upon nature. Nature is very good so far as it goes, but it is *sometimes* best for us *not* to modify our plans in accordance with it. Man has improved upon nature in many ways in the agricultural world, and why not in the apicultural world? Now, as to the matter of tiering up, friend Doolittle has not yet made it quite plain to us why his plan of securing comb honey is very much better than the tiering-up plan. Of course, there are some disadvantages connected with tiering up, and we think it is equally true that there are disadvantages in the wide-frame system—notably, the amount of labor entailed, as C. C. Miller intimates. The question as to how far the colony may be enlarged, and in what way, is an interesting one. If it can be properly solved, it will help not a little in the matter of securing comb honey, and at the same time of avoiding unfinished sections. And, while we think of it, fewer unfinished sections will probably be secured by Doolittle's than by the tiering-up plan.

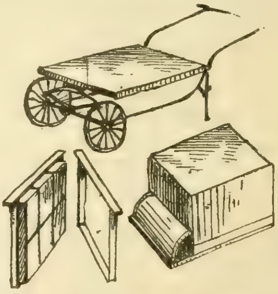
RAMBLE NO. 9.

CARNIOLANS, BOTH PRO AND CON.

THERE has been much written, pro and con, in relation to the merits and demerits of the Carniolan bees. Sometimes the pro seems to prevail, then the con seems to sweep all before it. The Rambler confesses that he became somewhat fuddled between pro and con; and in order to get his head level again, he determined to visit an apiary devoted exclusively to the rearing of Carniolan bees and queens.

Let me introduce to you Mr. John Andrews, of Pattens Mills, N. Y., who has associated with him Mr. Lockhart, a young man who has promise of becoming a shining light in the ranks of apiculture.

Mr. A.'s apiary is located in a fertile valley where bees have access to clover, basswood, chestnut, and an abundance of buckwheat pasturage. The little hamlet surrounding the apiary contains a gristmill, store, blacksmith shop, and on the hill, near by, a Methodist church. The apiary is neatly laid out in rows, with grapevines for shade and fruit, the last of which was very abundant, and in almost perfect clusters, which showed the almost constant trimming with those scissors which were always in the proprietor's reach. The soil surrounding the hives is sand, and every weed and blade of grass is kept down, and the yard is as smooth as a floor. A shop and small building for bee-fixtures stand at one side of the yard.



ANDREWS' HIVE-CART, FRAME, AND HIVE.

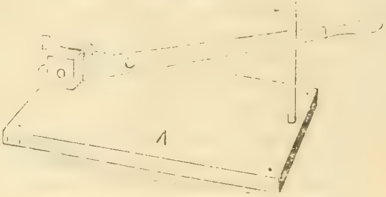
The hive used is a modification of the L. hive, with frames 11¼x9¾, running crosswise in the hive. I noticed several novelties in the apiary, proving Mr. A. to be something of a genius. His cart for moving bees to and from the cellar, and for apiary work, was admirably adapted to the purpose. I also noticed a wide frame to hold surplus sections. To facilitate the removal of sections, it was made in two parts; half could be slipped off from the sections at a time. For brushing bees from the combs, a crow's wing is used. Mr. A. called my attention to the almost silky softness of the wing; and just as I had made up my mind to convert myself into a crow-hunter, and supply my apiary with wings, Mr. Lockhart remarked that the crow smell made the bees cross. Thus do joint workers and odors disagree.

In wintering, Mr. A. uses a rim to elevate the hives from the bottom-board, and a cage over the entrance (see cut) to allow bees the privilege of the entrance, and still prevent loss on the cellar bottom. This plan works so well that all of his hives are supplied with these cages. Messrs. A. and L, were quite enthusiastic over the many good qualities of the Carniolans, and I found it as I expected to, all pro and no con in this apiary. Mr. A. has kept blacks for many years, also Italians, and now he has an imported Carniolan, and has, I think, a tested Carniolan in every hive. The novice could scarcely distinguish between the Carniolan and the common black or brown bee upon seeing them at the hive entrance; but upon opening the hive, their characteristics are plainly shown. It was quite a novelty to the Rambler to open a hive and remove frames, and find the queen, without the use of either veil or smoke, and receive no demonstrations of ugliness. This is a strong point with many, in favor of the race. The bees also cling quietly to the combs, evidently taking it as a matter of necessity that they should be examined. I further learned that they are good cell-builders, and are not liable to tear down cells when inserted in a queenless hive or nucleus; in fact, Mr. A. stuck them down between combs, almost in a reckless manner, it seemed to me. Mr. L. thought they would cap honey more rapidly and whiter than Italians; work better on buckwheat, gather but little propolis, winter better, and would work four miles or more from the apiary. Their breeding qualities are well known, commencing in early spring and continuing until late in the fall. I mentally made up my mind that this propensity, on the whole, is against the race. I had one glimmer of con on my side; for however much we desire bees up to the 20th of June, after that time I consider a great amount of brood a detriment, and, according to Mr. L., these bees kept the hive well filled with brood for a great length of time, and sometimes as many as seventeen frames full. But if this is the only objection to the race, it can now be easily controlled with a H—— no, a division-board——pshaw! I didn't mean that either—a—a—queen - excluding - honey - board hive! ha! ha! that's it. Restrict the queen at the proper time, and the Carniolans are perhaps a desirable acquisition. After hearing Carniolan talked several days, I was worse fuddled than ever, and resolved to try a tested queen, and one from Bros. A. and L.'s yard is safely reigning in one of my Italian colonies. How Mr. A. sells honey on Lake George will next occupy the attention of the RAMBLER.

We are very glad indeed to make the further acquaintance of Mr. John Andrews, as well as his associate, Mr. Lockhart. It needs a Rambler to go around occasionally to get these silent bee-keepers to tell what ideas they have worked out among themselves. We should take great pleasure in going through an apiary so neat and orderly kept. How can a man be otherwise than a genius who is so tidy in his habits? The hive cart looks as though it might answer a very excellent purpose. The engraving will doubtless make its manner of construction evident. On some accounts the divisible wide frame might be very desirable, but won't the bees chink in propolis between the two parts? and won't there be a line of propolis left upon the sections immediately beneath the division? We only make these suggestions as possible objections. Perhaps Mr. Andrews himself will tell us. We are glad to hear such good reports of the Carniolans. If they have real merits they will in time assert themselves.

BURNS' FOUNDATION-CUTTER.

BELOW is a sketch of a device I have made to cut foundation. It is the best thing I ever tried. It cuts very accurately, and will cut several sheets at the same time, and almost as fast as you can work the knife up and down. I use only starters.



BURNS' FOUNDATION-TRIMMER.

The engraving above will explain how it is made. B is a block sawed through, and a hole bored through from end to end to admit of a bolt, which also passes through the end of the knife-blade. C is the knife-blade. D is a slotted post which keeps the knife from swaying from side to side. A is a board 20 inches long by 12 inches wide.

Shellsburg, Iowa. J. A. BURNS.

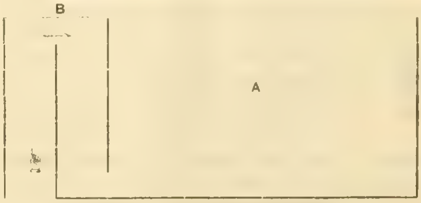
Your plan will work; but, judging from such trials as we have made, we feel sure it would mash the edges some.

THE MILLER-WARNER FEEDER.

HOW ANOTHER FRIEND STRUCK VERY NEARLY THE SAME IDEA BEFORE ITS ADVENT.

GLEANINGS of Oct. 15 came to hand a few days ago. The article on "The New Feeder," under existing circumstances, excited more than ordinary interest, and, as you will perceive, inspired this article. To be brief, I will simply state my story.

The spring of 1885, with the usual cool nights and the consequent necessity of feeding my bees, caused a very decided interest in the use of feeders. The usual attending difficulties and objectionable features of all feeders are known to all experienced bee-keepers, so it is not necessary to repeat them. My search was for the most desirable qualities, and those were to be combined in a feeder that would prevent and require the least loss of heat, thus permitting and inciting uninterrupted passage between cluster and feeder. Thorough study of the principles thus involved, and practical experimenting, resulted in the construction of a feeder on the same principle which friend Miller subsequently adopted. The diagram below illustrates the idea I carried out.



SECTIONAL VIEW OF FEEDER.

A, reservoir; B, glass that slides.

Several of my friends induced me to exhibit it at our State Bee-Keepers' Association, in January, 1886, also at the reunion of the N. A. Bee-Keepers' Association held at Indianapolis, in October of the same year. Report of exhibits at the last-named makes mention of this.

It is in use in various parts of Indiana, and has been ever since its first introduction in 1885. When friend Miller first introduced his feeder, in the April number of GLEANINGS, 1887, I was making preparations to go to California. Ill health and other attending cares prevented taking notice of it further. Thus it has been postponed up to the present, when friend Miller's lament over the Warner improvement inspired me with the belief that now was my time. With much regret for still further invasion on friend Miller's invention, I simply claim the "New Feeder" to be an improvement on my own. The principle used in both is the same; my only claim is priority. My feeder simply permits access to the syrup at one end, with no bee-space underneath. The Miller feeder permits access from both sides, with a bee-space underneath.

With regard to the Warner improvement, my own feeder has the same advantages (providing they are not made too large), simply by the use of two instead of one, or by one alone where entrance to the feeder is over the cluster. Then at times a small feeder is far more desirable than a large one.

I can not close this communication without referring to this section of country. I have been a resident of this State now for a year. That some who come here are disappointed, can not be questioned; but I find very few who have lived here a year or over but are perfectly delighted with country, climate, and its productions. The latter are yet in their infancy; but now that speculation is a thing of the past, I look forward to the development of a section that will produce any thing that grows in the semi-tropics. **GEO. W. BRODBECK.**

Los Angeles, Cal., Oct. 30, 1888.

Yes, friend B., it is very difficult indeed for any one to get hold of an idea that has not been previously anticipated by some one else, either wholly or in part. The great point in favor of the Miller-Warner feeder is that the bees can get at the syrup without moving from the cluster—that is, to one side or the other of the brood-nest. Of course, you can put two of your feeders together, but did that really occur to you at the time you got out your feeder? When desiring to feed only a small amount we frequently used only one compartment of the feeder, and that containing only a small amount. We can thus feed two pounds just as easily as twenty-five.

SLATTED POTATO-BOXES.

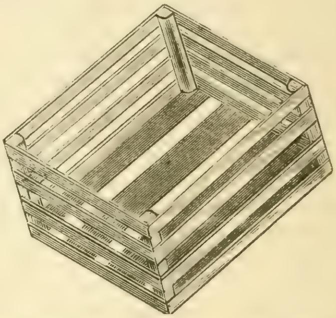
SUGGESTIONS CONCERNING THEIR CONSTRUCTION.

EDITOR GLEANINGS:—Instead of using solid ends for your slat potato-boxes, make a frame the size of the end, of stuff 1⅛ in. sq., or 1 x 2 (1 in. sq. would answer), halving them at the corners, and nailing with wire nails, clinched. Nail thin strips on one side of these frames, which should be the inside of the box, using nails long enough to go through and clinch. Now nail on your side and bottom strips, using, as before, nails that will go through and clinch. This makes a box that is easy to handle, having a handhold all along the upper edge on the ends or sides (both if desired), and is perfection in the way of lightness, strength, and in the matter of ventilation. There is, besides, a saving of material. Indeed, the only material needed to make them is the strips you now waste, so they can be made cheaper than those you have been making, besides being better.

The strips nailed on the frame to form the ends should run perpendicularly. This, I think, makes the box a little stiffer. **J. A. GREEN.**

Dayton, Ill.

About the time we received the foregoing from friend Green, another friend, W. Hanford, Etna, N. Y., sent a potato-box by express, which is very similar to the one friend Green describes. As one will represent the principle of both, we had Hanford's engraved.



POTATO-BOX WITH SIDES AND ENDS MADE OF SLATS.

Our artist failed to correctly represent the box. It is a little too shallow, and, besides, does not represent the bottom corner-strips to which the bottom slats are to be nailed. By referring to the description you will see that such a box differs from friend Green's only in that he would nail the slats for the ends on the inside perpendicularly. At first sight such a box would be cheaper, lighter, and perhaps better ventilated. We find, upon careful calculation, however, that it costs more. In the box that friend Hanford sends there are 96 nails; in ours, only 60. As it takes time to drive every nail, of course it will make a difference in the time of nailing the box. In our box can be used 2-inch nails or longer, if thought best. In the one illustrated, the length of the nails is limited by the thickness of the corner-posts and the slats, which in the box sent would make them just 1½ inches long. We have a man who nails potato-boxes by the piece. He estimates that he could nail the solid-end boxes nearly twice as fast. Again, the stuff for corner posts must be of hard wood; and as we do not have this in refuse, we should have to buy it. As to the difference in weight, we find there is no appreciable difference. Our boxes, as well as the one friend H. sends, weigh about 7 lbs. each. Upon comparing the strength of the boxes by racking them cornerwise, we find that those having a solid end are much stronger.

We are very glad of the suggestions furnished by the friends above named; for if they do nothing more, they serve to prove that the slatted potato-box with solid ends is about as near perfection as can be, considering our waste lumber which we have from sections.

THOMAS B. BLOW

AS A BEE-KEEPER AND SUPPLY-DEALER; HIS VISIT TO MEDINA.

As previously announced, we have had a very pleasant and enjoyable visit from Mr. Thomas B. Blow, of Welwyn, Herts, England. Mr. Blow is not only a bee-keeper but a supply-dealer, as those of our readers will know who take the *British Bee Journal*. He keeps about 100 colonies of bees. His supply business is rapidly growing, and at the present time is one of the largest if not *the* largest of the kind in Europe. He has traveled very extensively, and, if we remember correctly, he has visited every country in Europe except Russia. He has also visited Algiers, Egypt, the Island of Malta, Cyprus, and the Holy Land. All of these visits have been in the interests of the busy bee. The same is true of his visit to America and American bee-keepers. He is a fair type of an Englishman, and is also considerable of a Yankee, in his energy, activity, and push.

Chancing to glance over a late number of *Revista Apicola*, a Spanish bee-journal, we noticed that the editor of that journal, Mr. Andreu, had recently paid Mr. Blow a visit —at least, not longer ago than last spring. As he gives so many interesting items concerning our friend and his business, we have thought best to copy the report of his visit, which we find in the above-named journal, published in Port Mahon, Spain :

> In the middle of a large plain crossed by countless rivulets, and covered by an exuberant vegetation, lies Welwyn, surrounded by myriads of flowers. Such a meadow, with neither bees nor apiculturist, would be incomplete. The nectar of those flowers would be lost, and also, in consequence, the thousands of pounds of honey which to-day are gathered there. If you wish to see a model apicultural population, see Welwyn.
>
> "Where does Mr. Blow live?" I asked of a boy, as I alighted from the train.
>
> "Ah! Mr. Blow. I will accompany you if you wish." And the active and polite young Englishman started off on the road, taking immoderately long steps, after the English style. On the road he spoke to me of Mr. Blow and of his bees. "Everybody knows him. His bees will not sting, for he treats them well," etc. Once at the house of my apicultural friend, I dismissed my kind guide and inquired for Thomas.
>
> Mr. Thomas B. Blow, the well-known English apiculturist, is about 38 years old; and one might presume, in consequence, that he is a worthy representative of human activity, improved by the experience gathered in a multitude of voyages. Besides being a very skillful photographer, he is an expert draughtsman, and his albums are immense archives where are collected every thing good and useful which he has seen in his apicultural travels.
>
> With the kindness which characterizes him, he accompanied me through all the departments of his workshops. Steam, that mighty agent which to-day figures in every industry, moves the many machines of the rooms. Among others was one for planing boards 45 centimeters wide. Mr. Blow explained to me that it was the first one imported to England from the United States, and was designed for making sections. This machine has been in use for several years, planing, on an average, 10,000 sections daily; but it is now used only for planing, as the Americans ship sections to Europe at a lower price than they can be made in England, for the English have to import the wood. A large number of planers, saws of various kinds, chisels, etc., fill up this vast workshop. where it is difficult to hear oneself on account of the noise produced by so much machinery.
>
> We went up to the first floor, where we found the hands cutting boards in transverse sections with a large circular saw fastened to an axis like a pendulum, which the operator draws toward the wood to be cut.
>
> On the same floor are the rooms for making comb foundation. I there saw large boxes of wax from Italy, Zanzibar, Madagascar, etc. This wax is divided up into piles of convenient size and proper quality for the manufacture of good foundation, which is impossible when only one kind of wax is used. The Italian wax is very handsome, but too soft. That from Madagascar is too hard, etc.

Mr. Andreu, the editor, then proceeds to give in detail Mr. Blow's method of making comb foundation. As his plan is essentially the same as the one in use by the best foundation-makers of this country, we omit it. In speaking of Mr. Blow's diplomas (and you know the English and Europeans in general are great folks for medals and diplomas), Mr. Andreu says:

> In the machine-room my attention was struck by the large number of diplomas, premiums, and honorable mentions which adorn the walls.
>
> "Where did these diplomas come from?" I asked of Mr. Blow.
>
> "They came from various expositions, and cost much labor. Here are seen the certificates of many small expositions, in nearly every one of which I found myself obliged to figure somewhat. And although this cost many voyages and a good deal of work, you see I have obtained rewards by the hundred. I will now show you my collection of medals, lest you imagine they are all *paper*."
>
> So saying he drew forth a large chest quite full of apartments, which he opened in my presence, and which contained splendid medals of gold, silver, and bronze.
>
> "Let us go and see one of the apiaries, not very far distant," said Mr. Blow.
>
> We went out from that Babylon, and walked to the little city of the bees, for so his apiary seemed, with its straight streets. Mr. Blow informed me that this apiary contained only about 100 colonies, as he had made several large sales during the spring.
>
> He sent one colony to Scotland. They were Carniolans, which is the favorite race with Mr. Blow, on account of their good temper and activity. We went through all the apiary, and my friend informed me that he had started apiaries with his hives at the Cape of Good Hope, in Queensland, Tasmania, Cyprus, New Zealand, and many other countries. Mr. Blow is the only dealer in bees in England who has visited the principal apiaries in Carniola, and this with the sole object of being able to offer his patrons bees of a pure race, and queens of a quality which can not be bettered, So great is his trade in bees that he told me that, in spite of the fact that his situation in spring was so favorable, he had not produced honey enough to even feed his bees, as the brood and artificial swarms had consumed it all.

JAPANESE BUCKWHEAT.

PROF. COOK'S EXPERIENCE WITH IT, AS TO THE AMOUNT OF YIELD, SIZE OF SEED, QUALITY OF FLOUR, AND A YIELDER OF HONEY.

Friend Root:—As you requested, I send you my conclusions after raising a crop of Japanese buckwheat. I thought at the time, that $3.00 per bushel was a good deal to pay for seed; but now after raising the crop I do not regret that I paid it. I sowed one-half early in June, and the remainder late in the same month. Thus the field was in blossom a long time. When the blossoms first opened, the bees visited them freely, though upon close observation it was found that the bees cease gathering from these flowers some time before the flowers fade. Again, you know that common report hath it, that bees will not work after noonday on the flowers of common buckwheat. This was not true this season on our Japanese variety. We observed bees on the flowers at all times of the day. But what astonished us all was the prolificness of this buckwheat, and the great size of the berry. All who saw it said they never saw its equal. I sowed it on the site of an old brick-kiln—solid clay soil with almost no humus, and yet I had a fairly good crop. I took two bushels to mill, that we might test the flour. The miller said he never saw so little waste in buckwheat, nor such enormous kernels. Of course, the little waste would follow from the large size of the kernel. We have tested the flour in griddle-cakes with maple syrup, and proncunce it *A No. 1.* Dr. Beal says he believes this is our common buckwheat, *Fagopyrum esculentum.* As buckwheat is a native of North Asia, this is quite likely true; but one has only to see the two side by side, to be convinced that this Japanese is a distinct and well-marked variety.

Before closing, let me suggest reasons why farmers, especially bee-keeping farmers, should sow buckwheat as a part of their crop rotation. First, it is sown late in June, and the comparative leisure after planting gives opportunity to prepare the ground. Secondly, it is an excellent crop to precede corn on land that is infested with wire-worms. It seems to starve out these terribly destructive grubs. Again, it is a profitable crop, often paying as well or better than does wheat. It also gives us the basis of our buckwheat cakes, which with maple syrup will tempt the most capricious appetite. Last, buckwheat furnishes ofttimes abundant nectar for the bees when all else fails.

Agricultural College, Mich. A. J. Cook.

The careful manner in which you tested it shows the Japanese to be far superior, not only as a yielder of grain, but as a yielder of nectar. For some reason or other, we have not had very many reports with regard to bees *working* on Japanese buckwheat. Perhaps this is owing to the past bad season. There is not a particle of doubt but that as a yielder of grain it is away ahead of the common buckwheat. We should be glad to have more reports as to its nectar-bearing qualities. We hope all our farmer friends will take the hints that Prof. Cook throws out.

SOME TIMELY SUGGESTIONS.

BEST SIZE AND SHAPE OF A COMB-HONEY SHIPPING-CASE.

Friend Root:—I want to make a suggestion about the size of shipping-cases for honey. We are receiving honey from all parts of the country, and we notice a great variety of sizes and styles. Scarcely two bee-keepers are using the same size, and very few use the sensible size that is best adapted to the more or less rough usage that transportation gives them. We notice the shipping-cases that are about 21 inches long and about 10 inches wide, inside measurement, and only one tier of combs high, and glass on only one side, with covers nailed on top (not sunken in), stand the racket the best of any shipping-crate, to the extent that would surprise you if you could see the different condition honey comes in from the same place by transportation companies.

If a shipping-crate is too near square, and weighs 30 pounds, there is too much base, or bottom, to be handled easily—too much like a flagstone. Also too small crates are a poor way of shipping honey. Almost invariably, combs are in bad order, owing to being so light that it is pitched about too easily. A half longer than wide is the safest size, and not to weigh less than 25 pounds. H. R. Wright.

Albany, N. Y., Nov. 10, 1888.

Thanks for your suggestion, friend Wright. There is not a particle of doubt that, if bee-keepers would ship their honey with more care, many if not all the troubles resulting from leaking and broken-down combs in transit might be avoided. But we fail to see just why a crate 21 inches long and 10 inches wide is better than one 12 inches wide and $17\frac{1}{4}$ inches long, inside measure. It is true, the size you recommend uses a narrower cover and bottom board; but we should hardly think this would make any very great appreciable difference. Now, the common-sized crates are of the latter size given, and will accommodate 24 $1\frac{15}{16}$ sections, or 28 seven-to-the-foot sections. You will see that your width of crate rather interferes with this unique arrangement. We shall be glad to hear from other commission men in regard to this matter. Tell us what size of crates come to you in best order; also whether the case should be glassed on one or both sides, or whether it makes any material difference.

UNDERSTANDING A LOCALITY.

BEES FOR THE HARVEST, JUST AT THE RIGHT TIME; FRIEND DOOLITTLE DISCUSSES AN IMPORTANT MATTER.

It was with much interest that I read friend Poppleton's article on page 838, Nov. 1st; not because he mentions my name in that article, but because he touches on an old subject which seems to be almost entirely ignored by the mass of bee keepers, or, at least, by the larger share of those who write to me asking questions. In fact, it would seem that friend P. did not realize how much was dependent on this matter of location while he was in Iowa; and if as great a light as he did not so realize, while at his former home, how could we expect that the rank and file of bee-keepers would do better? As hinted at above, I get many letters which show that the writers are almost or entirely ignorant of the time of the blooming of the flowers which produce their honey crop, and for this reason I have been contemplating the writing of an article for Gleanings, on the understanding of a locality, for some time; so as friend P. has suggested the subject, and started the "ball to rolling," I will venture a few words on the subject, hoping that all who read will be led to look into their locality more closely.

Friend P. says, that "different locations require radically different methods of management to obtain success," but in this I think he is mistaken, so far as the time of commencing to prepare for the harvest is concerned, for that should be done in reference to the blooming of the flowers which yield honey, no matter where we are. In nearly all localities where bees can be kept, there are certain plants or trees which give a yield of surplus honey at a certain time of year, while, aside from this, there is little more honey obtained by the bees than is needed to supply their daily wants. Some localities give surplus at three stated periods, others at two, while the majority give only one such yield. Hence, it is apparent to all, that, if such a honey yield or yields pass without any surplus, none can be obtained during the season. From this it will be seen, that, in order to be a successful apiarist, a person must have a knowledge of his locality, whether he lives in New York, Iowa, Florida, or Cuba, and also know how to get the laborers (bees) in the right time, so they can be on hand at the time of the honey harvest. Failing to do this, there is no profit in apiculture, and I can not conceive why this should not hold good in any section of the country, except in the time of commencing to get the bees. First, then, we have the location. Here in Central New York our honey crop comes mainly from linden, or basswood, which blooms from July 5th to 15th, and lasts from ten days to four weeks, according to the weather; while in other localities of this State white clover is the main crop, coming in bloom June 15th to 20th; and, again, in others buckwheat, yielding honey in August. Other States, without doubt, have as great a variation as to time of surplus honey as has this, and it should be borne in mind that it devolves on the reader of this to ascertain, by careful watching, just when and what is the source of his surplus honey crop so as to work accordingly.

After having determined when we may expect our honey harvest, the next step is to get the bees in just the right time for that harvest, not before or afterward; yet how few pay any attention to this matter, letting the bees take care of themselves, and thus they are generally produced so as to become consumers instead of producers! This is one of the reasons why so many persons who enter the ranks of bee-keeping make a failure of it. The queen is the mother of all the bees, she laying all the eggs which produce them. She is capable of laying from 3000 to 4000 eggs a day, yet often she is laying only from 500 to 1000 eggs daily, at the time she should be doing her best. After the egg is laid it takes three days for it to hatch into a little larva. This larva is fed six days, during which time it has grown so as to fill the cell, when it is capped over and remains hid from view for twelve more days, when it emerges a perfect bee, making a period of twenty-one days from the egg to the perfect bee. This bee now works inside the hive for sixteen days more, doing such work as feeding the larva, building comb, etc., when it is ready to go outside as a field laborer; and at forty-five days from the time of hatching it dies of old age, and another generation takes its place. From the above it will be seen that the egg must be laid at least 37 days before the honey harvest, in order that the bee have the opportunity of laboring in that harvest to the best advantage. Now, if the harvest is white clover, commencing to bloom say June 18th, the eggs for our laborers should be laid on or before May 2d; if basswood, blooming about July 10th, then the eggs should be laid on or before June 3d, and so on for any yield that may come in our locality, whether we are in Iowa or Cuba. The principle is the same for all localities where there is an intermittent flow of honey, and I can not see where any "radical change" of this mode of management can be made, no matter in what part of the world we may reside. If there is a steady flow of honey all of the year, during which the bees are active, then we should aim to keep the bees strong in numbers all of the time; but where one such place is found, fifty others can be found that give large yields only at certain periods when certain flowers are in bloom. Only as the locality is thoroughly understood, and the bees raised to apply to that locality, can we secure the best possible results. To keep the results obtained, just as few bees should be reared at all other times as is consistent with keeping the colony where it can be gotten in good working order when we wish it, so as to secure the harvest, otherwise we are supporting a horde of useless consumers. I know this is an old theme, but it is the one which has helped me to secure the results of the past; namely, that of getting a good yield of honey during all of the past 16 years; and if understandingly followed it will help others the same as it has me. Try it, brothers and sisters, and see if I am not right. G. M. DOOLITTLE.

Borodino, N. Y.

Yes, friend D., this is an old theme, and, if we are correct, you have touched upon the same matter before. But it is a very important subject, one of the few which need reiteration, and we are therefore very glad that you have given it such emphasis. Beginners—yes, and even some old bee-keepers—need to bear it in mind, that there should be a large force of working bees in time for an expected honey-flow. This honey-flow may prove to be very meager. All the more important, then, is it that there be lots of bees. You do not say how you managed to restrain the unseasonable breeding and the consequent rearing of many bees when their services will not be required; neither do you say how you procure a large force of bees just at the right time. As to the latter, you no doubt practiced stimulative feeding—that is, when natural sources failed; but what do you do when a season (as the past was in some localities) furnishes a small amount of nectar daily and continuously for some time, in such a way as to cause excessive brood-rearing, the resulting bees arriving at maturity just at the time when they will be heavy consumers instead of gathering surplus?

HONEY VINEGAR.

FURTHER SUGGESTIONS CONCERNING IT.

FRIEND ROOT:—I was very much interested in the article on honey vinegar in GLEANINGS for Nov. 1, by friend Black, and I offer a few comments. Having two or three gallons of crystallized honey, considerably off in flavor, that had begun to work and get sour, I concluded to throw it away; then it occurred to me to try to make a drink called *mead*, which I understood was fermented honey and water. First let me say that I'm a *temperance* man, my object being more to experiment than any thing else, so I tried but a little. I set a gallon jar of honey and water out in the sun, with a cloth tied over tight. The proportions I guessed at, so I do not know how much honey I used. In the course of two or three weeks I found I had—not mead—but some pretty good vinegar that was beginning to be quite sour, so now I had discovered something that I had not thought of before, and would enable me to save my honey that was worthless for any thing else. I don't like to see any thing wasted. Friend Black makes a valuable statement in telling what proportion of honey and water, and I should like to add that too much honey in the water will produce honey wine, or mead. Friend B. asks if the vinegar can be changed back to honey. No, it can not in any ordinary way. Boiling would only concentrate it, and make what in the drug-store is called *acetic acid*, or *concentrated vinegar*. In making wine, some sweet liquid is always used, just as in making vinegar, only the liquid must be sweeter, or, more properly speaking, there must be more sugar in it. Now, in the process the sugar is changed to alcohol, or spirit; and the more sugar the liquid contains (grape juice, orange juice, apple juice, or honey and water, as the case may be), the more alcohol there will be in the wine when made. Alcohol is wholly volatile, will all evaporate, or boil away; so wine, if evaporated, would leave a flavored water; but it sometimes happens that the sugar (or honey) was not all changed to spirit; if such were evaporated, sweetened water or syrup (or honey) would be left. In conclusion, I would suggest that friend Bingham would do well—if he is a prohibitionist—to be sure that he is using vinegar instead of wine.

If I thought it would come safely by mail I would send for one of those cheap hydrometers, or, as it might properly be called, saccharometer, or sugar-measure. If you wish to publish the above it might be well for you to put it into your honey-evaporator for a while, to be "concentrated." C. C. MILES.

South Pasadena, Cal., Nov. 16, 1888.

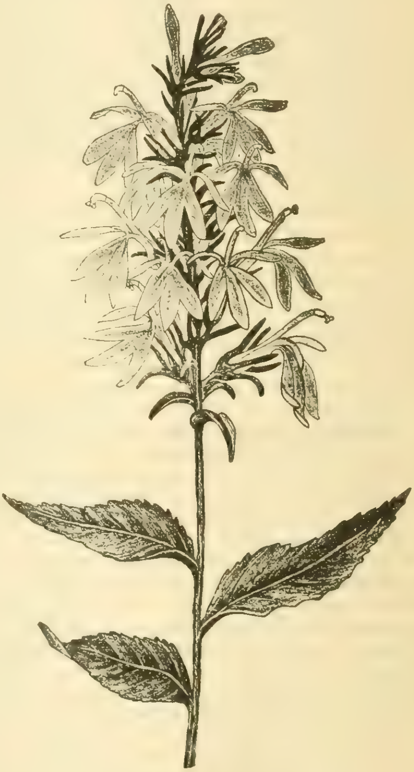
Thanks, friend M., for your additional suggestions. Your plan is a good one in regard to letting nothing go to waste; but we should be very careful that that waste is not converted into some other waste that will waste away not only all the vigor of our best young men, but also waste away our homes. We presume, of course, this is your sentiment.

CARDINAL FLOWER.

SOME INTERESTING FACTS AS TO HOW NATURE BRINGS ABOUT CROSS-FERTILIZATION.

I AM very happy, friend Root, to send you, as per your request, a fine drawing of our beautiful *Lobelia Cardinalis*. If the engraver's art could only add the rich green to the leaves, leaflets, sepals, and stem, and the gorgeous carmine to the petals, the figure would almost speak the flower's name.

Friend Root, do you remember what ludicrous blunders Agassiz made when he attempted to write of bees? He was a master in science, yet the humblest bee-keeper in the land could have taught even Agassiz very much. The point I wish to make is: If we wish to learn of bees and their work, we go to a bee-man; so when we wish to learn as to the nature, growth, development, and general economy of plants, we will, if wise, go to a first-class botanist. W. E. Gladstone is a marvelous man, but I would give a thousand times as much for Dr. Beal's opinion on an intricate matter connected with plants as I would for Gladstone's. Now for my point: All our botanists believe that odor and color in flowers are developed peculiarities. They have been evolved for the good of the plant. The method by which they aid the plants is by attracting insects. We positively know that insects by cross-fertilizing the flowers of the same species do immense good to the plants. This often changes sterility to maximum productiveness, and almost always increases the productiveness many fold. Of course, as bees are so much more numerous in early spring than any and all other sweet-loving insects, they are the chief agents in this good work. We may say, then, that the rich coloration and penetrating odors of flowers are their distress signals. Bees see the colors or smell the odors, and so are attracted, to the mutual benefit of both parties. We see, then, why many showy flowers, like this cardinal, bloom, and the Rocky Mountain or Colorado cleoma attract bees and other insects without odor. Other inconspicuous flowers, like mignonette, are very fragrant, and so attract insects by scent, not gaudy coloration. Still others, like the phlox, are both showy and fragrant.



CARDINAL FLOWER.

Again, are not our bees governed by reason? It is sometimes said, that bees are wholly ruled by instinct. I do not think so. A red-clover field is rich in clover, and delightful with fragrance. Yet the honey-bee generally passes it by. A less fragrant and more feebly adorned white-clover field at the same time rings with the hum of bees. Why the difference? The bees have learned by experience that they receive no benefit from red clover. Indeed, the very fact that they are attracted by color argues that they are reasoning from former experience. Bees are, in a sense, botanists.

Our beautiful cardinal flower belongs to the family *Lobeliaceæ*, or the lobelia family, a small family that also contains a few species of blue flowers, which, though less showy than the cardinal, are really very handsome. It is very interesting to study this flower, especially in its relation to bees. In the figure, the green parts, including leaves and sepals, are colored dark; the flowers, or petals, stamens, and pistils, are less highly shaded. The corolla is irregular. These flowers need the visits of bees greatly; and let us see how hospitable they undertake to be. Note the three broad petals. They not only say come, by their bright hues, but by the restful footstool which they offer the weary bees. As can be seen in the figure, the stamens are united both by their filaments and anthers, and so form a tube around the pistils. In the upper flowers that are open, we see the anthers. The style bears a tuft, or brush, which, by growth, pushes out of the stamen-tube after the flower opens, thus brushing off the pollen. After it pushes out, the bilobed stigma opens. See lower flowers in the figure. Thus we see the pollen is shed first, and so these flowers *must* have the aid of the bees. The pollen is dropped before the stigma is matured. At the base of the style, upon the ovary, is a copious secretion of delicious nectar. The bees come eagerly for this nectar, and thus unconsciously cross-fertilize the several flowers.

Even as good a botanist as Prof. Goodale, of Harvard, says: "The cardinal flower, however, has so long and narrow a corolla-tube that bees are unable to reach the nectar, which is, moreover, so watery that they do not in this case resort to their frequent expedient of biting through the corolla to get at it." How well this illustrates what I said above. Prof. Goodale is a superb botanist; but a bee-keeper, friend Hilton, could have told him that bees do get nectar; and I, an entomologist, could have taught him that honey-bees do not bite through the corolla-tubes of flowers. I doubt if even bumble-bees do this. The carpenter bees surely do. I have my doubts in regard to any other species doing so.

We now know that this cardinal flower is a most excellent honey-plant, and that the honey is first-class, both in respect to color and flavor. If I succeed in showing everybody that they ought to plant cleome for their bees, I will next try this lobelia. It would be grand to prove that, by spreading this beautiful plant, we were adding to the filling in our purses.

I will close with some lines from one of my revered teachers, Dr. O. W. Holmes, on this cardinal flower.

The cardinal, and the blood-red spots
  Its double in the stream,
As if some wounded eagle's breast,
  Slow throbbing o'er the plain,
Had left its airy path impressed
  In drops of scarlet rain.

Agricultural College, Mich. A. J. Cook.

P. S.—Since writing the above, friend Gould, of Fremont, sends me a specimen of willow herb. He says he thinks Mr. Hilton must be mistaken; that willow herb furnishes much honey, but that the cardinal flower is rare, and he has never seen bees on it. Mr. Hilton, however, informs me that there can be no mistake about the matter. Where the honey was gathered there are acres of the cardinal flower, and the honey was surely from these flowers. The flowers are different in color and form, and it seems probable that Mr. Hilton is correct. A. J. C.

Many thanks, friend Cook, for the facts you furnish, not only with reference to the cardinal flower, but in regard to the matter of inducements which each flower presents to the bees for the purpose of bringing about fertilization. This is a very interesting question, and one which we wish might be emphasized more than it is. If only our fruit-raisers could be made to see what an important part bees play in the fertilization of the embryo fruit, perhaps they would be less inclined to blame the bees so mercilessly for the little injury they may, and probably do do to fruit at certain seasons of the year. It is indeed interesting to know that these rich colorations and fragrant perfumes which delight us so much are not only ornamental but useful; yes, more than useful—necessary. If it is a fact, and we have no reason to doubt it, that bees are attracted by these rich colorations, does it not argue that our little friends do indeed distinguish the various shades of colors, at least the bright ones?

THE HARMER 2-OZ. SHAVING SECTION.

A REVIEW OF THE RAMBLER'S AND MR. ROOT'S EXPERIENCE.

I WANT to help Rambler out in producing the 2-oz. shaving section (see page 798). I do not know his domestic name, but I guess it is a better stick-to-it name than the one most of us know him by. I suppose I am exposing my ignorance, but I have not had time to read all my bee-papers this summer, so it is quite likely that I have missed his identity (if he has any). His writings are always interesting, and perhaps we shall be better acquainted some day. He claims to have sent for samples. I should like to know if he got printed directions for making the veneer and putting the sections together. I can hardly think he did, for I have never had the small sections badly bulged when the fdn. was put in properly and the frames rightly spaced. Right here I should like to ask Rambler what distance he spaced his frames—9 frames to 11½ inches is the right spacing for the sections as I make them.

It seems altogether probable that Rambler knows that he commenced wrong in calculating to produce 40,000 of the 2-oz. sections the first season. If he had commenced with the hope of producing 500 or 1000 of them as an experiment, working up instead of down, he would not have been so discouraged. My advice would be to keep the straw-cutter out of the apiary-house this winter, for the veneer must be well cut, and just the right length. If it is too short it makes a poor job; and if too long it will bulge. I should like to ask those bee-keepers who are trying the 2-oz. sections, not to be in too great haste to give it up, unless they have given them a fair trial. To make them a success there are several essentials, which, briefly stated, are as follows:

The sections should be properly put together, foundation and all. The frames should be properly spaced, as above mentioned. There should also be a fair honey-flow; and last, but not least, a good populous colony of bees. I have heard men remark that their bees would not go through the honey-board and occupy the sections, never thinking of the true cause—*there must be plenty of honey in the flowers, and plenty of bees to gather it.* Then I think it would be hard to keep the bees out of the boxes.

I think, Mr. Editor, that your man put too many frames together in a day and a half, and I do not wonder that he begged to be excused. I do not think he could possibly put 20 together in that time, and do it as it should be done, especially at the start. There must have been something wrong, or he would not have broken them to pieces in lifting them off the form. I have never pulled a frame to pieces yet in removing it. Every thing must be just right, then we shall find it a real pleasure to put a few hundred together, especially if the thermometer is around zero, and the snow blowing so that it is not safe to go out of the house. A few hundred of these small sections of honey would pay a bee-keeper, even if he never sold one of them. One given to a friend or stranger will put a happy thought in his mind of you very often; and the little incident will never be forgotten, and it will tally one little step toward the happy side of this life. If you like, Mr. Editor, I will write a short article before long, on putting the veneer and foundation in place; and I will with pleasure answer any inquiries, through GLEANINGS or otherwise. W. HARMER.

Manistee, Mich.

Yes, it is quite likely that Rambler did build his hopes too high, in trying to make 40,000 sections at first, for he so intimates before he gets through with his article. The essentials you give are important; but that the sections should be put together properly is difficult of accomplishment. One must have lots of patience, and must be willing to go very slowly. We should be glad to have you, friend Harmer, write such an article as you suggest, describing very minutely your present method of filling the frames.

BEE-KEEPING IN SOUTH AFRICA.

A MISSIONARY'S EXPERIENCE IN THE REGION OF NATAL.

SEVERAL years ago I saw a few copies of GLEANINGS, and there was such a cheery homelikeness in it all that I wanted to become one of you, and contribute a bit from my experience with bees in Natal. But a missionary's life is a busy one, and I have never seemed to find time to write. I have now come home on a furlough; and seeing, a few weeks ago, at Columbus, friend Root's exhibition of bees and honey, I am reminded of my former desire, and now sit down to give the readers of GLEANINGS a leaf out of my life in Africa.

I must tell you, my bee-keeping was only a bit of recreation in a busy life, and resulted chiefly as well as firstly in some "experience" that may or may not be of value.

To begin with, I was ignorant enough of all that related to bees. I knew there were "workers," "drones," and a "queen," but I could not have distinguished the latter, though I could the two former. My wife and I went to live in an old house that seemed to be "bee-haunted." A desperate attempt had been made to get rid of the bees under the floors, with but partial success, for bees were flying about the house, much to my wife's terror. However, they left after a time, and for about two years we were comparatively free of them. Meantime an older missionary, who had formerly lived in the house, excited my desires by stories of the quantities of honey he had taken from bees under the floor—30 lbs. of strained honey at one time. Another missionary told me how his son had "boxed" some bees, which, in the course of time, had "waxed fat" and sallied forth upon men and beasts, stinging some of the latter so severely that they died. I determined, however, I would have some bees, and soon my opportunity came. It was in the fall of 1883 (it was fall there, but would be spring here). It had been a good season for honey, and I remember the natives brought large quantities to sell. They, of course, had got it by smoking out the wild bees, and robbing them of their honey. In seeking new homes, many swarms came to our house and built their comb under our floor. Here was my chance, and I improved it. After a swarm had been at work some time I took up the floor one night, and, with the help of a native boy, secured the queen. What a time we had! Though I was well muffled in mosquito netting, and had my hands covered with gloves, yet the bees found an opening and crawled on my neck and under my sleeves, and up my trowsers. After a time the bees became quiet, and then we searched for the queen. The natives call it the *inkasi*, the king; and when I would tell them it was not a king, but an *inkasikazi*, a queen, they were too polite to contradict, but still smiled incredulously.

Well, that first box of bees was secured and put under an orange-tree in the garden, but the bees had no notion of staying. They came out, and I put them back. I had clipped the queen's wings. I do not remember how many times I put those bees back in the box, but it was more than a dozen. As soon as it was warm in the morning, out they would come. I put them back, only to find them at dinner time in a cluster on the ground. It seemed to be a trial of perseverance, with the chances on the side of the bees. I finally left them on the ground, and gave them up. But several days after, finding them still there, I tried again, and this time succeeded, for the bees remained and went to work; but it was well on toward two weeks that I had been working over them. Meantime other swarms had come into the house. During that season they came into five different rooms, and several times the same room was occupied time after time by bees.

Once bees came into a room, and hung in a cluster from the window-frame, and began to make comb there; then, thinking better of it, they went away.

Once while we were at dinner a large swarm of bees came crawling under the door; and through a crack, down under the floor, they went. Just 24 hours afterward I took them up and they had made a large pail full of comb, much of it containing honey. As the result of the six or eight swarms of bees that I had "boxed," three remained to me and prospered. I had two rough hives, made with movable frames after a model given in the "Encyclopedia Britannica." As the bees fixed the frames pretty solid, the term "movable" was a misnomer.

This is Chapter I. in my experience. Whether any more is written will depend on friend Root's wishes and my time. H. D. GOODENOUGH.

Clifton Springs, N. Y., Nov. 13, 1888.

We are very glad to make your acquaintance, friend G.; in fact, we are always glad to hear from missionaries. We should be pleased to have Chap. II. of your experience.

Absconding swarms are pretty apt to seek abodes previously habited by bees. There must have been something peculiarly attractive in that bee-haunted house, to induce so many swarms to seek it, and at such long intervening periods too. It no doubt was cool, much cooler than a hive outside would be, subjected to the rays of a tropical sun. It would seem from the incident which you relate of those bees, which swarmed out so persistently as often as they were hived, that their domicile, which you had so carefully provided, was "too all-fired hot." Next time give them plenty of shade and a wide entrance, and see if they will not stay content.

SIZE OF SECTIONS.

C. C. MILLER FIGURES OUT THE RELATIVE SIZE AND THICKNESS OF COMBS IN SECTIONS.

A CORRESPONDENT writes me as follows:

> *Dr. Miller:*—I wish you would give me your opinion as to the best size for sections. Of course, to those who have a stock of supers for the 4¼ x 4¼ section, a change would not be thought of; but to one just starting on a new hive, the change to a new size of section would involve no extra loss. The 4¼ x 4¼ section has always seemed too small. In ordinary seasons they will not hold enough. If 7 to the foot, they weigh only about 14 ounces. Even those that were 1 15/16 wide would go only from 14 to 15 ounces when filled.
>
> It seems to me that a general-purpose section should be of such a size as to hold from 1 to 2 lbs., according to width—at least this would suit me best, for my market seems to demand large packages. I want to tell you all about it, so you can see better as to my needs. I have been using two sizes of sections, 4¼ x 4¼, and 5 x 5, having on hand now some 60 or more supers suited for the smaller, and about 25 for the larger size; so you see I can continue the use of the 5 x 5 without extra loss. How wide should a 5 x 5 section be to weigh, when filled, 1 lb., 1½ lbs., and 2 lbs.? Perhaps the 2 lbs. could not be reached; but I know that a 5 x 5 x 1⅞ will hold 1½, or a little more. Would a 5 x 5, 7 to the foot, used without separators, weigh more than 1 lb.?
>
> M. A. KELLEY.
>
> Milton, W. Va., Nov. 7, 1888.

You start out, my friend, with a wrong impression. You say, "To those who have a stock of supers for the 4¼ x 4¼ section, a change would not be thought of." Why, my dear sir, I had wide frames for thousands of sections, and threw them aside for something better, and I would to-day throw aside the T super for something better; or, if I found a section considerably better than the 4¼ x 4¼, I would at once adopt it, even if I had to make anew all my supers.

If your market demands a large section, that goes a long way toward deciding what that market should have. If you have tried 1-lb. and 2-lb. sections side by side, and find that the 2-lb. sell more rapidly, or at a higher price, the question is pretty well settled. I would rather raise 2 lbs. than 1 lb., if one brought the same price as the other, I think. Unless you have tried the matter thoroughly, however, you may be mistaken in your market. Why does the 4¼ x 4¼ section seem to you too small? I have never heard any one object to it as being too small to look well on the table. So far as that is concerned, the best size would be that which would be eaten up at one meal, for I think a section never looks so well after it has been on the table once and partly used. Those who use pound sections can have a fresh one, free from muss, just twice as often as those who use two-pound sections. Any one who thinks a pound section too small can take two of them; but if he thinks a 2-pound section too large, he can not so conveniently buy half of one.

Please remember that you can not settle upon any size of section that shall always be uniform in weight. One season they will average heavier than another; and even during the same season those filled in the flush of the honey-flow may average more than those filled near the close. More than that, sections in the same super, filled at the same time, will vary.

The general rule is, that market quotations show a higher price for 1 lbs. than for any thing larger. It is possible that a one-pound section larger than 4¼ x 4¼ might be desirable, at least in some markets. It would, of course, be thinner, but it would make more show on a plate. It would take more capping for the same weight of honey, but it would be easier ripened in shallower cells. Without actually trying it, you can not tell how thick or wide a 5 x 5 section should be to weigh 2 lbs.; and after you have found exactly what it is for this year, you may find it very different next year. I will, however, make a rough estimate, basing it somewhat upon your statement, that 5 x 5 x 1⅞ will hold 1½ or a little more. If this latter was without separators, you can hardly hope to reach 2 lbs., for if you make sections much wider you will find the bees commencing extra combs between the sections.

We may figure on it in this way: If we allow ⅜ for bee-space between sections (although this bee-space is by no means a fixed quantity), the 1⅞ section less ⅜ will be 1½ inch; and as it weighed 1½ lbs., we have a pound weight for an inch of comb in thickness; so for 2 lbs. weight we need a comb 2 inches thick; and if we add to this the ⅜ bee-space, we find we need a section 5 x 5 x 2⅜ to hold 2 pounds. Even with separators, I am afraid the bees would insist on additional combs built between. By the same course of reasoning, a section 5 x 5 x 1⅜ ought to weigh about 1 lb., and this varies only 1/24 of an inch from 7 to the foot.

One year I found 4¼ x 4¼ sections of different widths gave the following results:

Sections measuring—

10 to the foot weighed 9.56 oz. each.
9 " " " " 10.47 " "
8 " " " " 11.76 " "

5 x 5 sections give a net surface about 1/10 more than 4¼ x 4¼ sections, according to which we should find 5 x 5 sections measuring—

10 to the foot might weigh 13.38 oz.
9 " " " " " 14.66 "
8 " " " " " 16.4 "

But none of these things can be entirely relied on.

Marengo, Ill., Nov., 1888. C. C. MILLER.

We believe, friend Miller, you have covered the ground thoroughly. We have just a little grain of doubt, however, as to whether Mr. Kelley may not be deceived as to what sells best in his market. With scarcely an exception, the one-pound sections, 4¼ square, command a higher price in the current reports. If he should desire to ship his 5 x 5 honey to an outside market, he will find that it probably will not bring as much as honey in the regular 4¼ square sections. It will not do to depend too much upon one market near home. We can not tell at commencement of the honey-flow, to a certainty, where we shall find the best market. It may be near home, and it may not be. It is far safer to adopt what the markets in *general* demand. Friend Kelley should remember that a 5 x 5 section is an odd size, and as such will not fit regular-sized crates, frames, and shipping-cases. Odd-sized sections, cases, frames, and crates, also cost more than the regular.

MRS. CHADDOCK'S VISIT TO MRS. L. HARRISON.

HER EXPERIENCE IN SHOPPING IN PEORIA.

"WHAT'S the matter with Mrs. Harrison? *She's* all right!" I know, for two days I have been marching over the stony pavements, or riding in the stony streets of Peoria with her. For ten years I have never had a cloak that kept me warm. When I took long drives in winter time I was obliged to wrap up in a blanket. So this time, "when my ship came in," I said, "Mahala is going to have a new cloak, if the whole family have to be put on short rations before spring to make up for it."

Now, I have always had an idea that, if I had money, I could buy any thing; but I find it is not so. I went to our town to buy this cloak, and, alas! there were none large enough. Then, as I have been *going* to visit Mrs. L. Harrison for fourteen years, I thought, "Now is my time." When the train stopped at the C., B. & Q. depot a bareheaded woman, with her knitting in her hand, came sailing out to meet me.

"Now," said she, when we were inside the depot, "sit down and tell me how long you are going to stay, and just what you want to do, so that we shall know what to do first."

I told her I thought of going back on the four-o'clock train (it was then 12); but Mrs. L. said, "If the court knows herself, and she thinks she does, you won't leave Peoria to-day nor to-morrow."

Then we went up town, and I tried on *most* of the "44" cloaks in Peoria. Now, some of you may think this is an extravagant expression; but I found there were not a great many 44 cloaks in any store, and it did not take long to try them all on.

I had never bought any thing in a city before, and I thought perhaps I should feel timid, and that the clerks would see that I was from the country, and would snub me; but I did not find it so at all. If I had been Queen Victoria, just over from Europe, I could not have been treated with more respect and deference, and I was not timid in the least, nor flustered, nor any thing.

Lucy, the youngest of Mrs. Harrison's orphans, was with us; that is, she was about forty feet ahead of us when we were on the sidewalk, and we lost her completely several times while in the stores. Lucy is an *invincible* child. She carried the heavy luncheon-basket all the time, and would not give it up to any one; and as she ran on ahead, she *occasionally* stumbled over cellar-doors and curbing; but she always picked herself up, unaided and unhurt. When in the stores she fitted herself out in new cloaks and hats, and wore them as long as we stayed. At last, when I had walked over stones till I felt as though my toe-nails were as long as a bird's claws, and that I was walking on the nails and nothing else, we struck a "Daniel Deronda," and he—sold me a cloak! It was not a Jew store, but that particular clerk was a Jew; and it is my private opinion that he told me more lies in that one hour than he will ever get forgiveness for. He told me over and over again that he *could* not take a cent less than the price marked on the cloak. He talked in a loud voice, and waved his arms frantically, like a Methodist preacher; then he would come up to me and smooth the cloak, and pat it lovingly, and show me what good stuff it was. Then he would start off, and go on with his harangue. After awhile he wore himself out, and, throwing himself on a pile of cloaks that lay on the floor, he closed his eyes, and I thought, "Why, the man has talked himself to death," and I should have sprinkled water in his face if I had known where to get any. As it was, I sat on a high stool and looked pityingly on him. Presently he revived, jumped to his feet, and said:

"No, madam, I can not let you have that cloak for a penny less than the price marked. It is marked down *seven dollars and a half* now."

I told him I was too tired to buy any thing; that I would feel rested in the morning, and come back. Then he tried to scare me by telling me that *that* cloak would not be there in the morning. I started to go up to the other counter, where Mrs. Harrison was, and he said he would take three dollars and a half *less* than he had offered it to me before. I could not believe my ears. I thought I had not heard aright, and I asked him to say it over. Then I said, "Why, you told me only a minute ago that you could not fall a penny."

"Well," said he, "I've changed my mind."

Now, in Vermont, where I do most of my shopping, they never *fall* more than fifty cents or a dollar on any garment. They would not if I stayed all day, and walked out and in the store a dozen times. But that was such a big fall that he would not do any better; and after walking around in the store, and pricing other things awhile, I took it. Then we went to Mrs. Harrison's house, and I dropped down on the lounge and lay there till bedtime, and Mrs. H. and her husband sat by me and talked me dizzy-headed. The next day we went the rounds again. We went to a fur-store to look at robes, and the proprietor was *almost* a friend of mine—that is, he knew a great many people that I know, and asked me about them. When he showed me robes I said I thought them too small for two big people to wrap up in. He said:

"No, they are just the regulation size—plenty big enough for me and my wife. I'll show you;" and he brought a chair and seated himself close to Mrs. Harrison. "Mrs. Harrison is a large woman, and I am a large man, and here we sit just as we would in a buggy, and you see the robe is plenty large enough." Mrs. Harrison began pulling, and said, "It doesn't reach over to my side very well." Then he gave her more of it, but that left him so that the wind could blow in. I asked him how much the price would be if I wanted it, and he said that I reminded him of a man who used to come to him when he kept a hat-store. The man would price the hats and try them on; and when he found one to suit him he would say, "How much will this hat be if I want it?" and the hatter would repeat the price given before; then the man would say, "Well, how much will you take *in cash* for it?"

Then we went to a store where they sell overcoats and trunks; and when they were packing my purchases into a new trunk the proprietor came around and asked me if I had a little boy at home. I said, "Yes, I have the prettiest little boy at home that you ever saw."

"Oh! yaw," he said, "I tink dot is so, "and he smote his heart with his hand. "I got shust dot same kind of leedle poys to my house. Shust de prettiest leedle poys vhat anypoddy ever saw;" and he put his hands on his fat sides and laughed aloud. Then he gave me a lot of advertising cards for my boy. Mahala B. Chaddock.

Vermont, Ill.

Continued Dec. 15th.

We are very glad, Mrs. Chaddock, that the time finally arrived when you made a visit to our good friend Mrs. Harrison. You have not told us very much about our Peoria friend yet, but no doubt you will do so in the next. Your experience in shopping is not so very uncommon, for a good many others have had a similar experience, not in trying on 44 cloaks, but in trading with clerks. As a general rule, however, they are extremely courteous and attentive; in fact, it is their business to be so.

FUNCTIONS OF SALIVA.

AND WHAT ARE ITS EFFECTS UPON THE STARCH OF OUR FOOD.

NEITHER Prof. Cook nor myself am likely to be charged with writing too hastily when the reader is reminded that the correspondence on the functions of saliva, comprising two letters on each side, has extended considerably over two years. On page 564 of Gleanings for 1886, in a review of *Bees and Bee-Keeping*, Prof. Cook says the author's statement—that "our saliva changes starch into sugar—is a strange error." A month later, page 643, I tried to show that, if the food be thoroughly impenetrated with saliva, a considerable quantity of soluble sugar is formed before it is swallowed. In March, 1887, page 179, the professor replies, and there I intended to let the matter drop. In Gleanings, page 388 of the present year, Mr. Stachelhausen says, "The saliva is very important in digestion." The professor appears to have become sensitive on this point, for, in his running comments, he immediately replies, "We secrete saliva almost wholly to moisten our food."

Prof. Cook is sometimes hardly as careful as he should be when presenting the views of other writers. For instance, in his review of *Bees and Bee-Keeping* he represents the author as saying, "Our saliva is wholly a digestive liquid." What Cheshire does say is, that its "*principal office* is to chemically change some part of our food, and notably starch, etc."—a very different statement. Again, on page 179, Gleanings, 1887, he says: "Most English authors, and Foster with the rest, argue that the saliva may do a part of this work" (changing starch into sugar). Now, what Foster says is this: "Its *characteristic property* is that of changing starch into sugar," no arguing that "it may do" in this statement, nor is there any in the statements of at least some of the other English authors, as will be seen before I have done. With them the question is no longer debatable; and when a conclusion has been reached, argument is at an end.

If Prof. Cook's views in regard to the action of saliva are not yet fully in accord with those of the best authorities, they have been changing in that direction. Before this discussion began he held that it was a strange error to say that our saliva changes starch into sugar. A year ago last March he had progressed so far as to say, "That saliva will change hydrated or cooked starch into sugar, no one doubts"—a very creditable change of opinion indeed; but he immediately adds, "That it does so to any extent, I have not the least idea." And he says, further, "Surely there was little time for change in the mouth." This is the point now in dispute, and I propose to show that the starch of our food is changed by the saliva to a considerable extent, and that quite a portion of the change takes place in the mouth.

Prof. Arthur Gamgee, M. D., F. R. S., of Owens College, Manchester, England, says, "This change (conversion of starch into sugar by our saliva) is very rapidly effected. It begins instantly if the starch is already boiled, so that, unless the food is bolted, a considerable quantity of soluble dextrine and sugar is formed before the bolus is swallowed. The presence of food in the stomach is a greater stimulus to the gastric flow than its presence in the mouth. The juice is more rapidly secreted, but still is comparatively poor in pepsin, and still more so in free acid; but after a time, as more food is added, and as the first-coming food begins to be absorbed, the proportion of pepsin is increased. The amylolitic action of the swallowed saliva is gradually checked, and the still unchanged starch remains unchanged so long as it remains in the stomach (*Encyc. Brit.*, 9th Ed., Art. "Nutrition").

J. Milner Fothergill, M. D., of London, England, says, "Starch is digested by the salivary diastase while the food is being chewed in the stomach before and until its contents are acid" (*Indigestion and Biliousness*, Wm. Wood & Co., New York, page 55). "In man, starch is largely digested by the salivary diastase" (*ibid.*, page 41). "As rapidly as the starch is liquefied into soluble sugar it passes through the walls of the stomach, and so does not interfere with the digestion of the albuminoids going on therein" (*ibid*, page 12). "When the digestion is proceeding comfortably and normally, a considerable interval elapses before the acidity of the stomach becomes considerable, and during the interval the salivary diastase continues active, and has time to accomplish a good deal of work" (Wm. Wood, M. D., F. R. S., author of *Lectures on Digestive Ferments*, quoted in *Indigestion and Biliousness*, page 13).

The action of saliva on starch is held to be so important, as a part of the digestive act, that physicians condemn starchy food for infants, for the reason that the ferment of their saliva is not active till teething begins. Prof. L. Duncan Bulkley, M. D., of New York, says, "Many infants receive, in addition to the parent's milk, or perhaps in place of it, diet which is entirely erroneous. A number of infants suffering from imperfect nutrition are found to be taking large quantities of starchy food, such as corn starch, bran, etc., and in many instances far too much sugar is given with the food (Paper on *Failure of Nutrition in Children*, published in appendix to *Indigestion and Biliousness*, page 313). In this he agrees with Dr. J. Milner Fothergill, who says, "While children are suckling there is little natural diastase found, and it is not till the 6th or 7th month that it is found in sufficient quantities to be operative." In regard to this matter, Dr. Roberts remarks, "Until this period (6th or 7th month) it is therefore not advisable to administer farinaceous food to children" (*Indigestion and Biliousness*, page 56).

Regarding this discussion, the editor of GLEANINGS says in a foot-note, "Unless some special reason shall make it very important to know the exact truth, I can not see why it matters very much after all who is right and who is wrong." The reason why it is important is just this: If Prof. Cook is correct, then food which requires little or no mastication or lubrication, as porridge and milk, tapioca, sago, arrowroot, and cornstarch, for example, may just as well be bolted at once without any mixing with the saliva whatever; but if he is mistaken, and I think I have made it evident that he is, then, whether the food containing the starch requires mastication or lubrication or not, ample time should be taken to thoroughly mix and impenetrate the mass with saliva before it is swallowed. The advantages gained are, that the digested starch in the form of soluble sugar is absorbed at once into the blood, leaving the proteid portions of the food more fully exposed to the action of the gastric juice, and thereby securing their more rapid digestion, and there is less work for the pancreatic juice by which the remaining portions of the starch are more effectually digested; the proteids are more readily changed into peptones, and the fats more readily emulsified.

Two of the most common causes of indigestion are bad teeth and too much haste in eating. Dr. Fothergill says, "Bad teeth lead to indigestion in two ways. 1. They interfere with the proper admixture of the saliva with the starchy matters of the food by which the amylolitic action of the salivary diastase is lost or thrown away; and, 2, by imperfect mastication, the food is not prepared for the further disintegrating action of the stomach; and so, great and abnormal movements of that viscus are required in order to carry on the disintegration of the unchewed and imperfectly chewed food" (*Indigestion and Biliousness*, page 23). Too much haste in eating is followed by similar results. Upon the normal operation of the process of digestion depends to a great extent the comfort and happiness in life of every reader of GLEANINGS. This is the "special reason" why the teachings in its pages on this subject should be in accord with the exact truth. S. CORNEIL.

Lindsay, Ont., Nov. 19, 1888.

Friend C., we are afraid you do not quite understand our good friend Professor Cook. As we see it, with the possible exception of the first quotation to which you allude, his statements of the opinions of the authorities which he cites do not differ so very materially from your quoted statements. Friend C. evidently gave the opinion of his authority in his own words. It is possible that his own rendering did not give the exact shades of the original statements. As we do not pretend to "be up" on these things we will not attempt to say whether you are right or wrong. We suspect, if the truth were known, you both pretty nearly agree.

HEADS OF GRAIN

FROM DIFFERENT FIELDS.

PLEURISY PLANT NOT A YIELDER OF HONEY IN ALL LOCALITIES; OTHER PLANTS.

SEVERAL items in GLEANINGS from time to time seem to me to call for a caution against "hasty generalization." We have had high praise of pleurisy plant, *Asclepias tuberosa*, as a source of honey. It grows here in sufficient quantity to show if the bees held it in special esteem. They so rarely touch it that I suspected my pleurisy plant might not be the same as the one praised by your contributors. To make sure, I purchased a root last spring from a reputable florist. It is the same, and of no value here.

In a recent number, ironweed is praised as a source of honey. In some parts of this county, pastures are fairly infested with it. I have often passed through them when it was in full bloom, and the flowers were absolutely untouched by the bees. This is not meant as a contradiction to anybody, but only as a notice to beware of unexpected variations.

As to stings, those of bees and the common paper-wasp vary much in the pain they cause, according to the part affected, and other circumstances. My experience is, that the hornet, *Vespa maculata*, uses its "business end" with less provocation and more effect than either bees or common wasps. DAVID STRANG.

Lincoln, Tenn., Nov. 6, 1888.

In considering this matter it is well to bear in mind that in certain seasons and in certain localities a honey-plant will fail to yield nectar, while in other seasons and in other localities the same plant will yield very largely; therefore, what does remarkably well for others may not necessarily do as well for us. Some of our contributors may have been guilty of "hasty generalization" in the way you indicate, but when we come to take into consideration the facts we have mentioned, perhaps their "generalization" will not appear so "hasty" after all.

ARTIFICIAL EGGS; ARTIFICIAL HONEY, AND WHAT NEXT?

I fear your card in regard to false statements in the honey business will not prove effectual in all cases, as I met a man a few days ago who claimed he had talked with a man a few days previously who had eaten manufactured or artificial eggs in Chicago, and they could not be told from the genuine egg, except when attempting to beat the yolk and white together for pastries, as they would not mix. He also stated that the man had eaten artificial comb honey. After talking with him for some time I left him, in some doubt. S. WHAN.

Raymilton, Pa.

We had thought the story about manufactured eggs was too big for anybody to believe; and yet there seem to be some old fogies and reporters who still persist in repeating it. Before us lies a clipping entitled, "What next?" It was taken from the Pittsburgh *Dispatch*. This clipping goes on to tell, in very plausible language, how eggs are manufactured, and how the same can not be detected from the genuine. It is simply a rehash of the same old story. Why do not these chaps get up something new? Manufactured live chickens or artificial strawberries would make good material for another yarn. This clipping has been copied in other papers, and will continue to be copied, probably, as long as anybody can be made to believe it. If such stories must be repeated, we sincerely hope that these "wily" reporters will take in the whole fruit realm, and go so far that even the old fogies will shake their heads in doubt.

CONVENTIONS VERSUS BEE-JOURNALS.

On page 747 of the *American Bee Journal* appears an article from the pen of R. F. Holterman, the secretary-elect of the N. A. B. K. A., on the subject of the "new laws of the Bee-keepers' International Association." From this article we extract the following paragraph :

> Some may say, "Have we not papers published in the interests of bee-keepers, and we can have an interchange of all valuable ideas?" Let me say that that is impossible. He who thinks that he may remain at home, and read the report of a convention, and profit equally with the one who has attended, is greatly mistaken. Reports are not verbatim. Every reporter—it may even be unconsciously—gives prominence to what he thinks is of importance, and what he may consider correct, however mistaken he may be. You have then, to a great extent, to think as he does, and to see as he sees. Even were you to read a report verbatim, you would not share equally in advantage, for the very tones used in expression alter the meaning of the words.

From the nature of things it is much easier for a reporter to remember and jot down those things which favor his own beliefs rather than those things which seem more or less opposed to them. Necessarily, then, the report savors somewhat of the opinions of the reporter, as Bro. Holterman says. Bee-journals fill a place that conventions can not fill, and it is equally true that conventions fill a place that bee-journals can not fill. If you want to have a *real* good time, and gather together a lot of useful information, attend a good lively bee-convention. The information then furnished by the bee-journals will have an added interest, and you can read much more understandingly.

ADVANTAGES OF SMALL APIARIES.

This season has put an additional impetus to my impressions that it is well to have the bees in small apiaries of 20 to 30 colonies, one to two miles apart, where practical, unless the location is well stocked. My home apiary of 60 to 70 colonies this year gave no surplus, and were considerably short of sufficient winter stores; while a small out-apiary of 12 colonies gave almost enough surplus to supply the deficiency of those at home; and, besides, they are in better condition for winter, and did not need as much attention. In a good honey season, this arrangement may be considerably more troublesome; but the feature of being almost sure that they will be in good condition for winter, without feeding, even if the season is poor, will offset considerably more trouble in a good season, while, if things are properly arranged, this additional trouble can undoubtedly be reduced to a minimum, especially if the bees are run principally for extracted honey; in which case, if Simplicity hives are used, and tiered up with sufficient empty combs, at the beginning of the season, little attention need be given nor apprehensions of swarming entertained until, when the season is ended and the honey is sure to be well ripened, it can be extracted.

CHRISTIAN WECKESSER.

Marshallville, O., Nov. 20, 1888.

In moderate seasons the advantage of the small apiary is apparent, but it seems to us when the season is a fairly good one, possibly even better than the average, that you will find small out-apiaries of 20 to 30 colonies would do little if any better proportionately, than an out-apiary of from 60 to 70 colonies. Of course, the difference in seasons and localities will make considerable difference as to what is the best number of colonies for an out-apiary.

MUD-WASPS.

The large fine blue wasp, with yellow-banded abdomen, sent by Mr. Hailes, Texas, is new to my collection and to me. Hence my deep regret that it is so badly broken. Most insects sent me this summer have been wrapped in cotton, and placed in a strong tin or wooden box, and so have come to me in admirable shape. This is one of the mud-wasps, and is fully two inches long. All of these wasps have a very powerful sting. They never use this organ on people unless molested, but will so poison other insects as to paralyze them. Thus they are able to stock their cells with specimens as large as the tarantula. Such paralyzed insects or spiders serve to nourish the larval wasps. These wasps kill and eat many injurious insects, and so are our friends. In Europe such large wasps are condemned as destroyers of bees. If any bee-keeper in our Southern States discovers wasps killing bees, I should much like to receive such wasps. I am glad to receive all insects, but please wrap them in cotton so they will not break. A. J. COOK.

Agricultural College, Mich.

CRYSTALLIZED HONEY-DEW.

On page 198, March 15, Mrs. Chaddock says the honey-dew in Eastern Turkey is gathered from oak-trees. In Oregon it accumulates on fir-trees, and some on the fern, principally on the outer ends of the branches, and generally on one side of the trees, and from the top of the tree to the bottom. In places there are acres of it, and perhaps surrounding it there is none. This is what we call crystallized honey-dew, and it somewhat resembles icicles at the bottom of the tree, and at the top of the tree it looks like white sugar frosting. I can not say whether it comes every year or not.

Silverton, Or., March 31, 1888. E. S. REMINGTON.

RIBWORT PLANTAIN.

J. S. Perry asks, on page 534, for something in regard to ribwort, a species of plantain, as a honey-plant. This is the narrow-leaved, or English plantain. It is quite common here among clover. The bees work on it from July till frost comes. They get honey and pollen in all kinds of weather. The honey is a little inclined to be dark and strong, something like buckwheat. We cut clover two and three times in a season. The plantain will be up in from 7 to 10 days after cutting. The heads commence to bloom at the bottom, and continue as it grows up. As a weed, its staying quality is excellent. G. W. COVER.

Downieville, Cal., Oct. 30, 1888.

REDUCING THE SIZE OF THE SECTIONS SO THAT FOUR OF THEM WILL JUST GO INSIDE OF A STANDARD 4¼ SECTION.

In regard to small sections, why not make one-piece sections small enough so that four of them will just fill a standard section?

Groesbeck, O., Nov. 12, 1888. **WALTER S. POUDER.**

The thing can be done; but the greatest objection that occurs to us is the amount of wood that encircles the honey, to the actual amount of honey. Even with one-pound sections, consumers have sometimes complained that they have been obliged to buy four sticks of wood that were of no use to them. Consumers would have three or four times as good reason to complain if we should make sections the ordinary thickness of wood, and one-fourth of the size of the one-pound sections. If we make small sections, it is highly essential that the amount of wood be reduced correspondingly. Friend Harmer has carried out the proportion very nicely. But the difficulty with the most of us is in preparing and getting the sections ready for the bees.

NESTUCCA, OREGON, AND THE ADVANTAGES OF THE PLACE FOR BEES.

We have an excellent bee-country here, within a few hundred yards of the Pacific Ocean. The bees make a large amount of honey, and the honey is of the best quality. We are not very well stocked up yet. Our best bee-keepers have scarcely a hundred stands. I have reference to our country here along the coast only, and not to the Willamette Valley or any other portions of Oregon. The scarcity of bees is owing to the fact that the country has been but recently settled. But we have much better facilities now for obtaining bee-keepers' supplies than ever before; and the probabilities are that bee-keeping will be one of the leading industries of this country.

We have a thriving little town here—Woods—near the ocean. It is a pleasant place to live—not too cool in winter nor too hot in summer. It is pleasant all the year round. We do not put our bees in the cellar during the winter. They winter all right on their summer stands. We use the Simplicity hives. We like GLEANINGS, and hope to see its circulation largely increased here.

Nestucca, Oregon. **R. T. WEATHERBY.**

A PATENT-RIGHT SWINDLER, AND HOW HE OPERATED WITH HIVES.

I believe, friend Root, that I will tell you how I came to start in bee culture, and then you will get my opinion of the patent-right business. I knew nothing of the honey-bees, except that they would sting, and that I was afraid of them. About the time I was 21, a man, if man he was, by the name of W. H. McDaniel, from the northern part of Indiana, came to Kokomo, the county-seat of Howard County, with the Diehl bee-hive and patent-right. There was where I got my first lesson, and it came with such a blow that I haven't learned very fast since how to manage my apiary. But, mark you, I know better how to manage a patent-right man. This McDaniel claimed that a man could make more money by handling his farm-right than he possibly could on a big farm. He was well posted on bee-matters, and took in lots of the bee-men, and I was one of his victims to the amount of $180, for which I got nothing in return. I would say to your readers as I say to my neighbors, let the patent hive alone. I am using the L. hive, and I think it is the best one there is. **C. P. KYZAR.**

Ridgeway, Ind., June 12, 1888.

BEES ROBBING BY MOONLIGHT.

Did you ever have bees go to robbing by moonlight? My son who lives with me (I am an old woman and a widow) had a strong colony of black bees in an old-fashioned box hive, within ten feet of my bees; and one warm night in September, when the moon was about full, I took out my feeder as usual and placed it at the entrance. In a few minutes I heard the robbing noise, and went out and found them on such a rampage that I was sure my poor colony of Italians would soon be "done for;" but by sitting up all night, or nearly so, and following the A B C and Doolittle's advice, I stopped the robbing, or, rather, fighting, but at the expense of some bad stings. **LUCINDA A. ZIMS.**

Philippi, W. Va., Oct. 31, 1888.

We do not remember of ever having had a case of robbing by moonlight, but our bees did once gather some nectar from the spider plant by moonlight, some years ago, when we had a patch of it. We should like to know if any one else has had similar experience of robbing.

FEEDING BEES FROM A COMB INSTEAD OF USING A FEEDER.

I have looked over the list of feeders mentioned in Question 84, and have tried some of them. The one that suits me best is a good frame with brood comb, filled on one side with honey or syrup. After rolling back the burlap, this is to be placed flatwise on the top of the brood-frames in such a position that the bees can come up and take the honey from the top of it. **D. NOBLE.**

Clintonville, Wis., Nov. 2, 1888.

The plan will work. We have frequently supplied needy colonies thus early in the spring, where we did not wish to disturb the brood-nest; but since the advent of the Miller feeder, we shall use it instead, as it is well adapted for cold-weather feeding. The greatest objection to feeding with combs as you describe, is, that the bees gnaw into and disfigure that side of the comb next to the brood-nest.

WILL IT PAY TO SET OUT SPIDER-PLANTS LARGELY?

I have a small piece of orchard. Would it pay to plow it up, and plant spider-plant? Where can I get the seed? My bees have not made two pounds of honey this season. Shall I be obliged to feed them all winter? I have adopted the pepper-box style, but it seems to run out. I am afraid it wastes the feed. I have some cakes of maple sugar. How will it do to put those on to the hives?

Lynn, Mass., Nov. 12, 1888. **L. C. NORWOOD.**

No, sir! don't plow up your orchard for the sake of setting out spider-plants. They yield comparatively large amounts of nectar to the blossom, but it will not pay you to set it out largely for the sake of the honey you get from it. You will see by the A B C of Bee Culture that we do not recommend setting out any honey-plants except those that will pay in seed aside from the honey they furnish. Instead of feeding a little bit at a time, you had better feed a large amount at once, as directed recently in GLEANINGS. It is pretty late now to do very much with them in your locality, so perhaps the cakes of sugar are as good as any thing you can give them now. We have experienced the same difficulty you mention with the pepper-box feeder.

SECURING A SWARM FROM A LOFTY HEIGHT AT NIGHT.

When I was quite a youth I was very anxious to own bees, but my father could not go near them; and, being in bad health, he would not trouble himself to procure me a colony. On the 5th day of May, 1888, a very large swarm came and settled in the top of a tall elm-tree near my residence (in the city). They were viewed by thousands, curious to see. I waited until 10 P. M. to take them, as the streets were crowded with vehicles and people. I procured a long ladder, saw, sprinkling-brush, sheet, etc., and soon had them in my yard in an old-time box hive. They proved to be No. 1 Italians, and are doing finely. **H. C. MOSELY.**

Charleston, S. C., June 7, 1888.

THE LATEST BEE SENSATION.

The above is the caption of an article in the *Bee-Keepers' Record*, page 209. We too in this country have seen this same bit of bee sensation. Although we have no facts upon which to base an opinion, the whole thing seemed like a pretty big story. Unlike many other yarns that have been told in regard to our pursuit, it seems to be harmless. W. B. Carr, one of the editors of the *Record*, has a very happy way of commenting on it. We therefore copy both his comments and the clipping to which he refers, entire.

The following is one of the latest "bits" with which the press are pleased to enlighten the British public regarding bees and bee-keeping:—

> A singular flying-match is reported from Hamm, where the owner of a well-known establishment of homing pigeons, who at the same time is largely interested in agriculture, offered to bet that on a fine day 12 of his bees would beat a like number of carrier pigeons in making the distance (one hour) between Hamm and the town of Rhynern. The bet was taken, and bravely won by the busy little bees. Twelve pigeons and twelve bees (four drones and eight working bees) were taken to Rhynern, and simultaneously set free—a white drone arriving home four seconds in advance of the first pigeon; the remaining three drones and the second pigeon arrived together; and the eight working bees preceded the ten pigeons by a length.

The paragraph has appeared in dozens of our daily papers, and has been cut out and forwarded to us by several readers of the *Record*, one of whom asks, "Is it worthy of credence?" Surely our correspondents have ignored facts known to all bee-keepers, or they would at once set the whole paragraph down as the veriest rubbish. Fancy, taking bees one hour's distance (say 5 miles) to race home against pigeons! and the match being very appropriately won by a "*white drone*"! Then the cream of joke, so far as testing the gullibility of readers, is reached when we are told that "the eight working bees preceded the ten pigeons by *a length*." What a pity the veracious scribe did not add, "The above race clearly proves the immense superiority of white drones over the ordinary kind, and we would therefore strongly advise all bee-keepers to go in for piebald bees"!

REPORTS ENCOURAGING.

FROM 20 TO 27, AND 2055 LBS. OF HONEY.

I COMMENCED this season with just 20 colonies, mostly *blacks*. I had only 7 natural swarms, and built up 2 nuclei that I had raising queens, and they are now all strong colonies, and have plenty of stores for winter, so I have to winter 29. Honey taken from them, comb in 1-lb. sections, finished, 1269 sections; extracted honey, 786 lbs.; total, 2055 lbs. Wax, 26 lbs. How will this do for a three-year greenhorn? I mean this was my third year with bees. Last fall I got a good flow from Spanish needle and asters; this fall I got very little. I have some blacks that have not swarmed in two years. I now have 11 colonies of Italians, 3 hybrids, and 15 blacks. Total, 29. **R. J. MATHEWS.**

Riverton, Miss., Nov. 7, 1888.

A GOOD KIND OF PARTNERSHIP.

Since we have been taking GLEANINGS I got interested in the handling of bees. I sold my hybrids, bought and traded for three stands of Italians in chaff hives. I now have 19 colonies in fine shape for winter, and have not fed one. I sold some also. Our bees took the red ribbon for this section this year. I say ours, as my wife takes as much interest in them as I do. If I am away from home she hives them, and helps me at all times with them. We got 800 lbs. or more of fine comb honey; while other bees were clustered outside of their hive, idle, ours were storing fine honey. They worked strong on red clover.

As regards the features of your bee-journal, we have received the most benefit by the general information or experience of others, as to the management of bees under different circumstances, and for the providing of surplus comb honey. Before we began taking GLEANINGS we had two stands of hybrids; and about the only time we were around them was when they swarmed or we wanted honey. We knew nothing of their working. All was a mystery. **M. F. STYER.**

Medway, O., Nov. 5, 1888.

FROM 47 TO 105, AND 5000 LBS. OF HONEY ALL SOLD.

I send my report for this season. It is encouraging, after the total failure we had last year. I had 47 colonies in May; have now 105. My honey crop is 5000 lbs.—1000 comb and 4000 extracted. I sold every pound of comb honey for 20 cts. per lb., and the extracted for 12½ and 15, according to quantity. I also sold $250 worth of bees and queens in June, and gave 14 colonies to my neighbors who lost all their bees last winter. The honey is all sold. Yes, I feel "thankful to Him from whom all blessings flow." **R. B. LEAHY.**

Higginsville, Mo., Oct. 22, 1888.

FROM A 2-FRAME NUCLEUS TO 2 COLONIES OF BEES AND 55 SECTIONS.

I bought a 2-frame nucleus of Italians the 25th of May. I now have 2 good colonies of bees, and have taken off 55 1-lb. sections. They are well supplied with natural stores. Honey sells at 15 cts. per 1-lb. section. **MILTON D. OWEN.**

Douglas, Mich., Oct. 20, 1888.

NOTES AND QUERIES.

HOW TO GET THE BEES TO BUILD THE HONEY STRAIGHT, IN POUND SECTIONS.

I SHOULD like to learn the method you follow to make your bees build the honey straight in pound sections. JOHN MITCHELL.

Roseburg, Mich., Apr. 6, 1888.

[Use either full sheets of foundation or separators, or both. Separators with small starters will answer.]

JAPANESE BUCKWHEAT.

My Japanese buckwheat, the 2 lbs. I got from you last spring, raised me 86 lbs., with the same treatment that I gave the silverhull. It was on poor ground. It was the best buckwheat I ever raised.

Alleman's, Pa., Oct. 2, 1888. JAMES A. SPACHT.

ONE HUNDRED FOLD OF JAPANESE BUCKWHEAT.

I raised about 100 bushels of Japanese buckwheat from one bushel sowing. The seed I got of J. C. Gallup, of this place, who got the seed from you the year before. F. ANDREWS.

Smethport, Pa., Oct. 1, 1888.

DEATH OCCASIONED BY A STING.

The following was published in the *Old Homestead*, October, 1888:

MISS ELLA BAKER, an Englishwoman, the author of several successful stories for young people, was stung under the eye by a bee, and applied some simple remedy. The swelling did not go down, and in a short time she awoke from a sleep in a convulsive fit, and died within a minute.

Douglass, O., Oct. 11, 1888. FRED LININGER.

LATE POLLEN-GATHERING.

Our bees are to-day having a fly, which may be the last of the season. One colony is carrying in pollen. Is not this unusual? ROBT. H. SHIPMAN.

Cannington, Ont., Nov. 5, 1888.

[Rather late, friend S., for your locality, we should say. Are you sure they were not working on sawdust or something of the sort?]

ONION BLIGHT.

My neighbor has been applying 30 tons of clear stable manure, with top dressing of ½ ton complete fertilizer (costing $20.00) per acre on his onion ground, annually, and every year they blight and bring no onions to perfection. Can ground be made too rich for onions? M. GARRAHAN.

Kingston, Pa.

[As a rule, *not*. I have had no experience with blight.]

BEE-VEILS NOT CHIN PROTECTING.

The bees sting my chin through your bee-veils. It seems to me that bee-veils ought to be in the market, and sold by you, that protect better.

McLane, Pa. A. W. HARRISON.

[If you will wear a broad-brim hat, such as we recommend in our price list, you will have no trouble about the bees stinging your chin through the veil. This is one of the reasons why we prefer a broad-brim hat—it protects not only the neck and chin, but the tip end of the nose also. Any other provision for holding the veil away from the face we consider too much toggle.]

FOOT-POWER VERSUS STEAM FOR HIVE-MAKING.

Can a man of ordinary strength make bee-hives of Southern yellow pine, on the Barnes foot-power saw? JULIUS GERARD.

Brackett, Tex., Oct. 30, 1888.

[Yes, you can make hives of yellow pine with a Barnes foot-power saw, but we warn you that it will be hard work. It is hard work, even with our white pine here in the North. As we state in our price list, if you have a good many hives to make you will wish pretty severely that you had put in a little more money and purchased a little engine. You probably could make all the hives you need for your own use, on a Barnes machine, but it would take great drops of sweat, we assure you. If your time evenings is not worth much, a tread-power would probably be a saving over steam.]

OUR QUESTION-BOX,

With Replies from our best Authorities on Bees.

All queries sent in for this department should be briefly stated, and free from any possible ambiguity. The question or questions should be written upon a separate slip of paper, and marked, "For Our Question-Box."

QUESTION 91.—*At the same price, would you prefer hives made of knotty pine, or hives made of clear whitewood? It is said that whitewood will shrink more than pine, and consequently be not as desirable.*

Knotty pine. C. C. MILLER.

Knotty soft pine. DADANT & SON.

I should prefer the pine. L. C. ROOT.

We use redwood exclusively. R. WILKIN.

Of pine, if the knots are sound. MRS. L. HARRISON.

The knotty pine, if the knots are sound. H. R. BOARDMAN.

I should prefer knotty pine to clear whitewood. DR. A. B. MASON.

Knotty pine, as I know nothing of whitewood. P. H. ELWOOD.

Having had considerable experience with both, I should choose the knotty pine. G. M. DOOLITTLE.

I should prefer pine, but I should wish it reasonably free from knots. Poor lumber is not fit for hives. A. J. COOK.

I don't know any thing about whitewood, but I would not have hives of knotty pine—knots that generally get loose. PAUL L. VIALLON.

I should prefer to have my hives made of clear lumber at any time, whether that be whitewood or pine. I prefer the latter. CHAS. F. MUTH.

I have never used hives made of whitewood, but I know it is one of the worst kinds of lumber we have for shrinking and swelling. O. O. POPPLETON.

I have never used hives made of whitewood, but I do not want to use any thing that shrinks more than pine. Knots, if not loose, are but little injury. JAMES A. GREEN.

At a higher price I should prefer good pine; but if I were obliged to choose between knotty pine, well-dressed, and clear whitewood, I think I would choose the pine. GEO. GRIMM.

Knots in pine lumber are no objection if they are sound and not loose. I would rather have it than the whitewood clear. I don't use shaky lumber of any kind. E. FRANCE.

I would take the hives of knotty pine, provided a careful workman made them. I should not want the awful botches which some workmen can make with knotty lumber. E. E. HASTY.

I will take the whitewood if it is of the soft, yellow, light variety. Have it thoroughly seasoned. It takes and holds paint much better than pine. If you are not going to paint your hives, use pine.

Small sound knots do no harm whatever. Both are good. Use either that you can get easiest.

JAMES HEDDON.

The answers to Question 91 are pretty much one-sided, with the possible exception of that of Mr. James Heddon; and if A. I. Root were here, we are sure he would vote on the majority side. It is true that whitewood (poplar, or tulip) has a very bad reputation for shrinkage, and this is a serious objection in hive-making. There is this to be said in its favor: It is a little harder than pine, and nicer and closer-fitting joints can be made with it. and, as Mr. Heddon says, it takes and holds paint better. We made some hives recently of whitewood, and we never had any thing go together nicer than they did. On the other hand, pine with sound knots is just as good for practical use for hive-making as clear pine. If the hives are to be made by hand, clear pine lumber can be worked up much more cheaply than the knotty pine; but when they are made by machinery the wood will work up without any trouble, knots or no knots. We do not feel satisfied with this one-sided testimony. Let us have reports pro and con, from those who have used hives made of whitewood, say for a period of ten years or more.

QUESTION 92.—*What kind of paint is the best and most desirable? What color sticks the best? Should hives go unpainted—that is, will they last long enough without paint until the advancement in apiculture demands hives of new models?*

White is most desirable. Red mineral sticks the best. Decidedly, NO! GEO. GRIMM.

There is no better paint than best white lead and oil. Color to suit taste. L. C. ROOT.

I use white lead for paint, and would prefer to paint, even if they lasted no longer than those not painted. DR. A. B. MASON.

I use dark colors of various shades. I guess it pays to paint. The last part of this question is a "poser." H. R. BOARDMAN.

For the lower hive, white lead and oil. For the cap, a mineral paint. Paint your hives, if you do your house. MRS. L. HARRISON.

Hives should be painted. We use white lead for white; for the darker shades, metallic brown. Red ocher is good. E. FRANCE.

I prefer white to any other color, whether it sticks best or not. I think hives should be painted, whether they would last long enough without it or not. O. O. POPPLETON.

Lead and oil. White is the better color, as it resists the heat of the sun best. I think the saving of the hive by paint pays, to say nothing of the looks.

R. WILKIN.

Yes, indeed. Unpainted hives last long enough for the money they cost, a lifetime, if they are taken good care of. But painted white or a light stone color, improves their looks considerably.

CHAS. F. MUTH.

Iron-ore paint is the most durable of any I have tried, but I think some light-colored paint more desirable. Some mixed paints are good; more are swindles. I should not expect hives to last long enough without paint. P. H. ELWOOD.

Probably good white lead. Really, I hardly know. If I had only a few hives I should paint them for looks; but as a matter of dollars and cents, I doubt if it pays. C. C. MILLER.

I do not know any thing better than white lead and linseed oil, but am inclined to hear further evidence. My favorite way is to make the hives of unplaned lath, and bind them with cotton cloth instead of painting them. E. E. HASTY.

Hives should be painted white. White lead and linseed oil make the best paint I have ever tried. The iron-oxide paints are said to stick best. I would paint hives unless I expected to change soon. Covers, especially, should be painted, or they will crack and leak. JAMES A. GREEN.

Pure white lead and raw linseed oil for a priming-coat, and a very little turpentine added to the same for subsequent coats. To make it dry, a little patent may be added, but it is not as good as without. I would invariably paint my hives at least every two years. PAUL L. VIALLON.

I think zinc and white lead. Color should be white, as that reflects the rays, and does not heat the bees like the dark absorbent colors. I do not think paint pays, if simple durability is considered; but when we consider looks, heat, and durability, painting does pay. A. J. COOK.

We use Tascott's enamel paint, of Chicago. All colors stick that are good. Pale green is a good color, so is white. Paint every thing—house, barn, and bee-hives, even if but for your own satisfaction. Heddon himself will not discard the old hives for new models when they are in use.

DADANT & SON.

The cheap mineral French yellow ocher and English venetian red will outwear the higher-priced mixed and lead paints; but I prefer the lighter color, at least for that part of the hive which is to be the most exposed to the sun. If pine would keep its bright straw color, and not turn dark, in localities where it is cheap I wouldn't advise painting where that material is used; but in most places it pays to paint. JAMES HEDDON.

I think it better, all things considered, to paint hives; and the paint I use is first a coat of lead and oil, mixed quite thin, and after that is dry I put on two more coats of the Averill chemical paint, which makes the hardest finish, and wears the longest, of any paint that I know of. I prefer white to any colored paint for hives, for the reason that it keeps the hives cool enough in summer, so no shade-board is needed. G. M. DOOLITTLE.

On Question 92, the balance of testimony is in favor of lead, and of the color white. We have tried various kinds of paints—chemical, lead and zinc—mixed, and what not? For a time we favored the Averill chemical; not long since, the white lead and zinc combined; and now we have gone back to the pure white lead as the best of any paint we know of.—Not very many of our respondents answer the latter portion of the question. It may be because they regarded it as too much of a "poser," as H. R. Boardman did. Yes, we knew it was a difficult question to answer; but if we knew the correct answer, it might make a difference in point of economy. C. C. Miller, Prof. Cook, and C. F. Muth, intimate that the hives might go unpainted; but even *they* advocate the use of a protection, for the sake of looks, even if for nothing more. It is no doubt true, that the darker shades last better. The chief objections against them, and a serious one too, is that they absorb more light, and consequently more heat.

Question. 93.—*Is there any feasible plan of extracting honey in a small way (without mutilating the combs), say from three or four colonies, without going to the expense of purchasing an extractor?*

I think not. L. C. Root.

I know of none. Mrs. L. Harrison.

I doubt it much. C. C. Miller.

I don't know of any. P. H. Elwood.

Not that I know of. Chas. F. Muth.

Borrow one, or make one. E. France.

I don't know of any. H. R. Boardman.

Yes; borrow one, as my neighbors do. Geo. Grimm.

Not that I know of; but it will pay to own a cheap extractor for that many hives. O. O. Poppleton.

A proper-sized barrel, with a comb-basket arranged inside, and without gearing, answers a very good purpose. Dr. A. B. Mason.

I do not know of any way. Of course, there are cheap extractors made for a single comb. Our English neighbors use them. R. Wilkin.

Extractors are so cheap now that I would have one, even if I had only two colonies. There are no other ways that I know of. Paul L. Viallon.

I know of none. Mr. Hill, of Kendallville, Indiana, makes a very cheap extractor that would answer well. It is made of gas-pipe. A. J. Cook.

Why not buy an extractor? The crop of one hive will pay for it in one season. It is a mistake to neglect buying so cheap a machine. You might as well try to cultivate your garden without a spade. Dadant & Son.

Not that I know of. When you figure the cost of a cheap extractor, considering the interest, and wear and tear of the machine, you will see that it pays to have a honey-extractor, if you are going to raise honey in that form, even from no more than three or four colonies. Jas. Heddon.

Extractors are so cheap now, that I should say it would be preferable to buy one, rather than spend the time necessary to fuss with something that would not do the work one-half as well. People frequently spend more time in trying to save expense than would be needed to buy the thing required, if only one-third price were paid them for the time consumed. G. M. Doolittle.

I suppose this chap wants to extract a little honey for his own eating. Let him take a double-sized sheet of tin, and bend it slightly in the shape of an open book—prop it up properly aslant, with a bowl set under the gutter. Watch the bees closely; and whenever they get a run of honey, go for it immediately; if you let the honey get thick once, I shall have to give you up as an incurable case. In throwing out the honey, hold the frame over the tin, not horizontal, but somewhat edgewise; then with a quick jerk, which you will learn by practice, thin nectar can be got out quite easily. Last spring I took some apple-blossom honey so, rather than take the trouble to wash the extractor. By the way, apple-blossom honey in the nectar state is much better than it is when ripe, and basswood is fully as good. Of course, I do not advise keeping unripe nectar. E. E. Hasty.

It can be done; but never having tried it, except experimentally, I can not say whether or not it would be profitable, even on so small a scale.

There are numerous bee-keepers, no doubt, who do not feel justified in purchasing an extractor, and yet would be glad to extract a comb or two of honey occasionally, without injuring said combs.

When Question 93 came under my consideration, I had never tried such a thing, but I decided at once that it could be done. Dropping my pen, I walked out into the honey-house. Taking a comb of honey, I uncapped part of it, put it into the center of a comb-bucket, and wedged empty frames (not combs) on each side. There was my extractor. Going out of doors, so as to have "full sweep," I grasped a handle in each hand, as low down as possible, held the bucket out at arm's length, and turned swiftly on my heels. Eureka! There was the honey on the side of the can. After one or two trials, though, I decided that making a spinning-top, or, more correctly, the spindle of an extractor, was more confusing than pleasant. I then took a light rope, tied one end to each handle of the comb-bucket, and threw the middle over the limb of a tree, about ten feet from the ground—higher would have been better—and drew it up until there was room to crouch underneath. Bringing the rope around the ends of the comb bucket so as to keep it perpendicular, I began to swing it around in a circle by the ropes below, taking care that the side of the bucket was kept outward. The result, while perhaps not equal to the work of a first-class extractor, was at least satisfactory; and with practice, no doubt just as good results could be secured.

This is not meant to be more than suggestive. Any one who is sufficiently in need of such an extractor can easily mark out the details. I will give you a hint or two more, though. Make a box of tin, or of wood well waxed, to hold one comb. Tack a piece of tinned wire cloth on each inside, leaving just room to slip the comb down between. Hang the box to the ropes by hooks or snaps, so as to be easily detached. There must be a rope at each end, in order to keep the outside tangent to the circle.

With care you ought to be successful. If you are not, you will at least have the fun of trying, and that with less trouble than I had in my first attempt to make an extractor. James A. Green.

With one or two possible exceptions, the responses to Question 93 agree that there is no feasible plan of extracting honey in a small way from three or four colonies, without purchasing a machine. It also seems to be pretty well agreed, that an extractor is an actual necessity in an apiary, be it large or small. As Doolittle says, we often waste more time and money in trying to get up an inferior home-made contrivance than a first-class implement made for the purpose would cost. Hasty's and Green's extemporized extractors are novel, but, after all, there isn't very much fun nor money in 'em.

OUR HOMES.

OR, RATHER, NOTES ON MY WAY TO CALIFORNIA.

He looketh on the earth, and it trembleth; he toucheth the hills, and they smoke.—Ps. 104 : 32.

To my Sunday-school class:

I HOPE, dear boys, you are all in attendance. Well, ere many years you will all, I trust, be in *business* of some kind; taking some part in trade, traffic, or commerce, or doing something *useful* in this busy world. One of the great problems in business is, how most effectively to *advertise* one's business; and in this great city of Cincinnati, thousands of dollars are expended in various forms of advertising-signs. Electricity, plate glass, and gold-leaf, astonish and almost startle one with the magnificence and splendor with which great business houses attract the crowds. Well, I am going to tell you of a novel advertisement. If you were *deaf, dumb, and blind, this* advertisement would catch your attention. We were on our way to the depot. I got a glimpse of flowers through a show-window, but concluded we couldn't stop, until, in passing the door, which was left ajar, a perfume came on the breeze that seemed so wondrous and ethereal that I stopped, spellbound. I told Mr. Holmes that I *must* stop just one minute, and that minute will be long remembered. The room was filled with chrysanthemums, almost as tall as my head, and covered with such masses of bloom of all sizes, shapes, and shades of color that I stood entranced as I bent over one and then another. I discovered there were almost as many shades of variation in perfume as in color. There were little starlike flowers, and great white blossoms with drooping petals, like plumes from tropical birds. I thought of the cherry-trees in bloom in the spring, and almost listened for the hum of bees, and then came across me the lines of the hymn—

A sweet perfume upon the breeze
Is borne from ever-vernal trees.
And flowers that, never-fading, grow
Where streams of life for ever flow.

During that brief minute, the flowers spoke a sermon to me; and in response came the prayer, "Lord, help me, that my life may be pure and innocent, like these flowers. Wash me, and cleanse me from sin." I do believe the influence of flowers is ennobling, and I praise God that the whole world has gone on a sort of craze, as it were, for these chrysanthemums. *Blessed are the pure in heart, for they shall see God.* O boys! let me tell you that it *will pay* you to resist evil, and live pure clean lives.

To Huber.—Nov. 13. It is a nice, beautiful morning, and papa is happy. He has just been made sad, however, by the sight of the soldiers' graves near Nashville, Tenn. There are over 100 acres of white gravestones where our soldiers are buried. They are buried as close together as they can be laid, side by side. When papa was almost a boy, our people had a great big war. The North and the South were not acquainted as they are now, and they didn't understand each other. A good many people were bad and naughty, I fear, and thousands of our young men and boys were killed in the fight before it could be stopped. If our boys all love God, and try to be good, there will never be any more such wars.

Hurrah! here is a cotton-field. It looks like bits of very white wool stuck on small currant-bushes. The colored people are picking the cotton off the bushes. It looks funny to see the people so very black and the cotton so very white. The mammas and all the girls and boys pick cotton. I don't think the mammas have very much housework to do, for the houses don't have any windows, and there can't anybody see if the floor *ain't* clean. Of course, the good houses have windows; but where the negroes live they don't. They don't have any mud here, like our mud, for the ground in Tennessee is all *red*, like bricks pounded up. Where a bank is washed away, the red ground looks very funny. And here are wagon-loads of cotton. I wish the people would keep on picking, so I could see how they do it; but they will stop to look at the cars (just as *some* of our boys and girls do at the factory), so I can't see them do it. On *good* ground, like ours at home, the cotton-balls are large; but on poor land they are small, and sometimes not worth picking. I haven't seen anybody drawing manure on the ground at all; but I think it would pay. Almost everybody rides horseback here. We just passed a colored woman hard at work at her washtub, outdoors, *smoking her pipe* meanwhile.

Here they have little steam-engines to stomp the cotton into square bundles, so they can load it on the cars.

Athens, Ala.—Great stacks of cotton-bales on the platforms, and a long procession of teams loaded with cotton — cotton everywhere. Much of the soil here is about as red as red paint would paint it.

Decatur, Ala.—As the train stopped we were greeted with loud hurrahs, and I am told the reason is, that to-day is the first time the train has been allowed to stop for two months, on account of the yellow fever. The houses, stores, and shops, are still shut up; but as we had a frost last night, people are coming back. One man, just getting over the fever, came down the steps on crutches, and there was quite a hand-shaking among them.

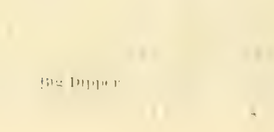
South of Birmingham we passed quite a little village of neatly whitewashed houses, but *not a window* in a single house in the whole village. They open one of the doors to get light and air, during the whole winter. This region is celebrated for its *freedom from consumption.* My traveling companion suggests that this abundance of air is possibly one explanation of it. Reader, ponder and be wise. The wild mountainous regions of Alabama, through which we have just been passing, afford a harbor, and have for years past, to illicit distillers, and the State has long had trouble in suppressing them. Many lives have been lost in arresting them and bringing them to justice.

To Huber.—Good-morning! Here papa is, away down in Louisiana. On one side of the track it is grass, clear out to the sky—no woods and no hills. On the other side it is *water*, clear out to the sky; and when the old sun came up he just popped his head right up out of the water, for he couldn't get up any other way. His face looked very bright and clear, as yours does when mamma washes it clean: and he just "smiled" on every thing, especially on a great big ship, with all its sails spread to catch the wind. This ship is on the *grass* side of the track; but the grass has now passed by, and a great lake takes its place; for along here it is swamp and water, one and then the other. As the sun shines on the white canvas, the ship looks like a great white bird or a thing of life. Now come trees covered with Spanish moss, which looks like great gauzy dish-cloths which somebody had flung on the trees dripping wet. People are gathering the moss, and drawing it off in wagons.

Palmettos begin here. They look like palm-leaf fans, with the fan split into strips like corn-leaves. As we get further south they grow taller and taller. Here is a garden with orange-trees and bananas growing outdoors. The trees are quite full of handsome oranges. At New Orleans we got our breakfast at the French market, in the open air, Nov. 14th. I had fried oysters, right off the shell, and more than I wanted, for "two bits." I did not know how much two bits was, and the Frenchman did not know what else to ask for, so a bystander explained that it was *25 cts.* My companion got a nice large beefsteak for *20 cts.* One can get every thing very cheap at the French market. I believe we found all kinds of garden stuff I ever saw or heard of, and a good many I never *did* hear of before.

On the wharf we saw *miles* of barrels of sugar and syrup, and *acres* of cotton. Great steamers and steamships were being loaded, while the railroads poured in their cargoes constantly. The people of New Orleans are very courteous and accommodating. Even the small boys will go out of their way to show us anywhere we may express a desire to go. At Jackson Square, near the depot, we saw beautiful flowers in bloom, and very handsome butterflies hovering over them. When you buy lemonade here they give you two straws to suck it through, so you won't drink it too fast and make you sick.

Last night it rained, but the old cars ran away from the rain; and when I looked out in the night I saw the stars and the Big Dipper, so I knew which way we were going. I will tell you, Huber, what to do: After you get this letter, the first time the stars come out, get mamma to show you the Big Dipper, and perhaps papa will be looking at it at the same time, and then it won't seem as if he were so far away. See if it doesn't look like this:



GENERAL NOTES.

New Orleans is behind us, and I am off for my 2500-mile ride. For the first time, I see acres and acres of sugar-cane; but there are a thousand or more acres of waste land and desolation where one acre is utilized for *any thing.* Rank wild grass and weeds stretch away clear off to the sky. At intervals canals are dug, as straight as a line, that take away the surplus water, and deep enough to float good-sized boats, some with sails. Occasional groves of trees are decked out with moss in a most fantastic way. I will explain to the children, that Spanish moss is an air-plant that has no roots, but feeds on the damp air of this wet and swampy region. I suspect, however, it kills the trees where they are so densely covered and loaded down. The climate and soil are grand for almost every thing, as is attested by the small gardens around some of the rude homes. Crowds of people are at work at the sugar-cane, but I can't see how they do, because they all stop as before, when the train passes. Here are carloads of the stripped cane. Sugar-plantations now multiply, and half a dozen different great chimneys are in sight, pouring forth volumes of smoke. Around each of these sugar-works is a village of whitewashed houses. The men who cut the cane have broad knives, not unlike a butcher's cleaver; and as the bright blades gleam in the hot sun they can be seen a mile away. I say *hot* sun, for it is not much cooler now than our harvest time at home. This spot (La Fourche, La.) looks like *business*, with its rice-fields and miles of sugar-cane; but now it is woods and swamp and Spanish moss again.

Here is another spot that rejoices my heart, with its system and activity. No fences are known here, but *permanent roads* through the cane-fields, at regular intervals, enable four-horse teams to draw *immense* loads of cane to the sugar-mills. Would not some such roads on our large farms at home *pay?* The majority of the houses (the poorer ones) are still without windows. A few seem to have tried the experiment, but the windows are now boarded up on the inside. If anybody wants light he must open a *door*, and this insures ventilation. The houses are also mostly set up on blocks, probably to avoid dampness and to insure ventilation also. The colored people are always out of doors, and this may be why they never have yellow fever or consumption. Many of the women, with their clean blue gingham dresses, are quite nice-looking. Some of the colored laborers are not only neatly attired, but are models of strength and muscle. I watched them on the dock at New Orleans, and the amount of labor they performed should be satisfactory. I talked with some of them and found them courteous and gentlemanly.

Sugar-cane, if I am correctly informed, is planted only once in three or four years, and even then they do not plant the seed, but throw stalks in the furrows, and plow them under; these stalks start at every joint, and thus start a new field. No seed or grain is raised from it at all. The furrows are plowed out three or four feet apart. When a sugar-mill is stopped, the whole village is deserted, and that, with the plantation, goes to weeds, ruin, and desolation.

We are now at Franklin, La., 100 miles from New Orleans, and in a pretty thoroughly tilled country, with many nice buildings and beautiful homes. It is now 4 P.M., and the rays of the declining sun across the miles of sugar-cane are about as glorious as the wheat-fields of Southern Ohio, which I wrote about before. May God be praised for this beautiful land of ours, with its great capabilities.

The lakes, rivers, and bayous of Louisiana are remarkably clear, clean, and mirror-like. I have not yet seen a bit of scum of any kind on any piece of water. It is always clear and sparkling in the sunlight. I have now traveled over 100 miles in Louisiana, and have not seen a hill nor even a rise of ground, that I remember; but as we near New Iberia the ground begins to undulate, the fields are fenced, and the houses are more like ours.

To Huber.—A little way back, papa saw a great bird hovering so near a lot of little boys that he felt almost frightened; but the small boys didn't care any thing for the bird at all. Pretty soon I saw some great big funny kind of chickens in a dooryard, but somebody scared them, and they flopped their great wings and lazily flew off. Now, what do you suppose they are? Why, they are "*turkey buzzards*"—great lazy awkward birds that go around up to the houses like dogs, and they come right back when you scare them, like a lot of flies. I just saw a little colored girl out in the lot; and as the train went by she "danced a jig" for the passengers. She made me think of "Topsy." Mamma will tell you about her. The sun is just going down. You know he popped up out of the water. Well, he has been up down here about *11 hours;* but away off where you are, he doesn't stay up quite *10 hours.*

To my Sunday-school class.—We have just passed miles of uninhabited mountainous wilderness; but now we come out on a level plain. This plain, although miles across in either way, is almost as clean and *green* as our lawns at home. It is fenced, and on it are thousands of sheep, besides horses and cattle, with their keepers. How lovely are the evidences of the handwork of busy men! I *love* mankind. As if to crown this piece of nature's beauty, on one side of the plain a smooth round mountain (a little one) curves gracefully upward, and this, too, has been made smooth and green by the sheep. The mountain stands solitary and alone; there is no other *undulation* on the plain. Further on there are more plains—huge pasture-lots, and more solitary mountains. It seems to be a feature of this strange, queer region. We crossed a river, and its dry bed is paved with beautiful white pebbles — no other color. Why, it is the prettiest sidewalk, for *miles*, that I ever saw. Even the clouds out here are queer and odd; but they are all beautiful. May God be praised for his infinite love and kindness in giving me even this glimpse of it all. This is near Uvalde, Texas.

To Huber.—It is now 7 o'clock, and I am leaning out of the car window, with only my thin silk traveling-cap on, enjoying the cool of the evening, and hearing the crickets chirp whenever the car stops.

Morning, Nov. 15.—Well, the crickets were not all of the fun. In the night I dreamed I heard mosquitoes hum, and pretty soon I did not *hear* them bite, but felt it, and it was not a dream either. I always thought that mosquitoes didn't think *me* "good to eat;" but these Texas rascals evidently considered your pa "tiptop." The windows were all down, and the curtains closed; but they were "thar" all the same. I grabbed and slapped, but they just went on; then I pulled the sheet over my head, but there was always *one* inside. But very soon the old cars pulled us out of "mosquito country," and then I was happy. The sun rises just at 7—half an hour later than at New Orleans. You see, Huber, the *sun* travels a *thousand miles* an *hour;* but the fastest cars can't quite make it in a *whole day.* I enjoy the race, however, even if we do "get left" so badly every day, and we make each day a little longer.

GENERAL NOTES.

This morning I found the land almost as level as all day yesterday; but now it begins to get rolling. From the high land we can see immense distances, for the air is wonderfully clear. All the cattle along here have long sprawling horns.

Harwood, Texas — Turkey buzzards are roosting on the trees undisturbed, even though close to the track. Several times I have seen them with outspread wings, apparently nailed to old dead trees or stubs, away up from the ground. If these are for scarecrows they don't seem to scare very well, for the birds alight right near them. The variety of cactus which we call prickly pear first appears here. After seeing a single specimen, I looked some time in vain for more; but after a mile or two the fields were full of them on upland and lowland. How strangely, special plants commence to thrive as soon as the natural climatic influences are right for it! One might load up tons and tons of them here. Some of them are a yard or more tall, and make a beautiful appearance. I am told that they use them for feeding stock, after scorching the "prickles" off.

To Huber.—Well, papa got fooled that time. The birds aren't nailed up in the trees at all. A man just told me that they got wet in the rain yesterday, and they have spread their great wings across the dead limbs to dry, just as mamma hangs her wet clothes on the line to dry. I guess I had better be careful how I "explain things."

GENERAL NOTES.

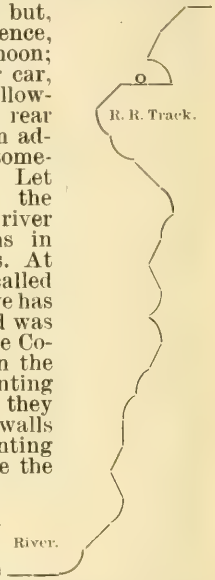
Acres of mesquite are seen here, which bee-men say gives considerable honey; and on its limbs is a parasite, the famed "mistletoe." The china-berry tree is also frequent; and in dooryards, and the streets of towns, we see the beautiful umbrella china. The tops are almost round, and the foliage is of a most beautiful glossy dark green.

Afternoon, Nov. 15.—Pecan-trees full of nuts are also seen along the track. As we near San Antonio I get the first glimpse of the yucca, or Spanish bayonet. San Antonio is a very fine city in many respects, and the view that stretches off across the valleys on every side is wonderful. Most of the houses compare favorably with those in our Northern cities. The greater part of this whole country is covered with mesquite-trees, which at this season resemble old decaying peach-trees. They stand for miles and miles just about as far apart as trees in an orchard, and the eye looks longingly for peach, apple, or cherry trees, which they all at times resemble; but, alas! there are no fruit-orchards of any kind here. In fact, I haven't seen a *nursery* in the whole Southern States. Birds whose voices are new to me warble springlike melodies. Although they have had an abundance of rain here, most of the river-beds are dry — characteristic, I suppose, of this region, which begins to seem more and more desert-like. The valleys here are immense. Imagine a great *soup-plate, 25 miles across, and you have it.*

It is sundown again (Nov. 15), and we have had 11 hours of sunshine once more. What an 11 hours they have been! I thought I had seen level plains before, but —I can't describe them. We have just passed one "cow pasture" that I do believe took the train a plump hour to make one side. I saw some strange animals in the distance that I thought I had never seen before. They looked like sheep, but they were miniature cows. When we got near they were *real* cows. Just think of the cows in a lot *30 miles* across! I wonder what boy drives them up to be milked, and *who does the milking.* I hear the tinkling of the cow-bells now. The lot is surely fenced, for the cows and sheep have gnawed the grass down close in the fenced fields; but the wild land is all grown up. It is fun to see cows, horses, sheep—aye, and rabbets too—scamper away from near the track when the train dashes past. The rabbets often hide behind the prickly pears. This 30-mile pasture has also its *one* mountain, and it was visible from a fast-running train for at least an hour. Cattle and sheep paths traverse the pasture as far as I can see. When they wish a pasture to connect with one across the railroad they tunnel under the track. I am told one man sometimes owns these vast fields and the stock upon it. In this case he would be appropriately called a "cattle king." Now, if it is these cattle kings that are to utilize these vast wastes of desolation, and hence give employment to many, may God's blessing rest upon them.

How did those strange hills come? The next view begins to give a clew. It is a mountain with a flat top and precipitous sides. More of them, with a large area on top, suggest that the mountain-top, or something still higher, was once level ground. But where is the fearful amount of soil that must have been washed away? It is suggested that this vast plain was once the bed of a great and mighty river; the table lands on each side favor the idea, and then we can suppose these queer mountains were originally islands that have, by the rains of ages, been rounded off or gullied according to the nature of the soil.

The rocks and soil here are quite like those in the region of Mammoth Cave, for they are constantly gullied and formed into cavities by the water. At Del Rio we came near the Rio Grande, and a "grand river" it is, in very truth, for it has, during ages past, cut its path down through solid rock to a depth of from 200 to 300 feet. Well, all the small streams from the plain on each side followed suit, cutting fearfully wild and deep canyons through all that country. These gorges are so deep, wide, and frequent, that making a railroad over them became a serious problem. They finally decided to cut it in the solid rock, following the Rio Grande, curves and all. We went through in the night; but, thanks to a kind Providence, we had a brilliant full moon; and as ours is the rear car, the conductor kindly allowed us to stand on the rear platform. The diagram adjoining will give you something of an idea of it. Let O be the locomotive; the plain is above, and the river below. The train runs in this way for many miles. At one point is a station called Painted Cave. This cave has an area of one acre, and was once a stronghold of the Comanche Indians. When the young braves were painting up for the war-dance they tried their hands on the walls of the cave. This painting is there yet, and hence the name.



Friday morning, 16th.—The sun rises to-day *another* half-hour later. The sunsets, and the sun*rises* are, out here, beautiful beyond any thing I ever saw before. For fully an hour this morning the clouds presented a series of continuing dissolving views. I hope there was somewhere an audience of more than one; but that *one* rejoiced at every change, and voted it an improvement on the preceding. When it was light enough to see the landscape, I found that *that* too had changed. The ground was of light sand, and occasional patches were as smooth and clean as any tidy housewife would want her floor; and, neatly dotted over this unique lawn, were different cacti, yuccas, and a variety of low bright-green shrubs. Just a square rod, taken almost anywhere from these *thousands of acres*, would make about the prettiest ornament for a front dooryard you ever saw. At the first station they had made a little garden of the shrubs of the desert; but Nature's arrangement was rather ahead of them after all. The yuccas were out of bloom, but the great clusters of dried flowers indicate what the scene must have been a little time ago. New forms, not only of the vegetation, but the hills and the sky, are constantly presenting themselves. A little later, we had the ground covered with snow in little patches—at least, almost any of us in the North would say so. It is alkali; and the water here from wells or springs is mostly unfit to drink. The water from the Rio Grande is a little alkaline, but is mostly used.

Saturday morning, 17th.—I didn't see the sun rise, for it is cloudy, and it rained in the night, and I enjoyed seeing a rain upon the desert. The first object that met my wondering eyes, when it was light enough to see, was cacti, as large around and as *tall* as telegraph-poles. You occasionally see them in greenhouses; but the sight of them growing right out of the white sand, so tall and majestic, is inspiring. A little more glimpse of daylight revealed also the wonderful irrigating canals, constructed by a former race of inhabitants of Arizona. I extract the following from the railroad book, "From the Crescent City to the Golden Gate:"

> It is an ancient field of religious and agricultural and probably mining operations, and presents remains of vast irrigating canals, and places of refuge for multitudes of people. Here and there throughout the Territory are ruins of what must have once been pretentious dwellings, storehouses, and fortifications. There are ample evidences that what may now seem like sweeps of arid and unprepossessing country to you, and which we shall pass over this afternoon, especially after leaving Tucson, was once beautified by lands which gave nourishment to hundreds of thousands of people. Whether this once prosperous and inviting domain and its inhabitants were swept like a flash from existence by flood or flame can never be known; whether they were rained upon by volcanoes, or swallowed by earthquakes, is nowhere engraven on stone or written on paper. But that they were here, and cultivated extensive areas of arable lands, is portrayed in the vast ruins of mansions and canals which exist upon the banks of the Gila and Salt Rivers, several of which I have visited upon many occasions. The remains of Casa Grande, which are a few hours' ride from the station of that name, I once visited while on duty in the Territory; and I saw other ruins which occupied more area—tremendous canals, and acres of pottery and granite implements of agricultural, mechanical, and culinary use.

We are out on the desert, and the engine is out of water. The passengers are scattered out among the queer vegetation. A mountain that I guessed was a mile away I was told was *fifteen miles.* It is in consequence of the atmosphere of this elevated region; and now we see the sunlight, through the clouds, on the western summit. The plains here are covered with beautiful gravel, and the "garden stuff" is spaced by Dame Nature, say from 5 to 10 feet apart, with occasionally a clear space of gravel, say a rod square. Among the shrubbery are beautiful globe cacti in full bloom. If some of our State fairs or expositions could get a quarter of an acre of wild Arizona garden on their grounds it would eclipse *all* the floral halls. Nature also keeps her thousand-acre gardens in beautiful order. No experienced Old-countryman ever weeded and raked down smoother beds than we have them here. There are no weeds; all are thrifty, beautiful plants.

Just here comes another turn of the kaleidoscope, in the shape of queer black rocks, say a wheelbarrowful in a place. They are about the size of eggs, some larger, and are scattered over, say, a rod of the white sand. These stones look like pieces of the black mountains away in the distance. Can they be lava from volcanoes of some former day? Now the stones come in cart-loads, and pretty soon they cover an acre. The conviction forces itself, that they were once like these great black hills, and that the mountains are all breaking in pieces slowly, and being washed out over the plain. *Now* the black pieces are more finely broken up and leveled down, until only a *slight* elevation shows where the great rock or mountain stood originally. Now, this black gravel, or lava dust, won't grow even cacti, so we have what seems to be vast fields of dark rich land, beautifully rolled, however, and fined up for a crop, but no crop has ever yet been on it. In many places this black sand is so thinly scattered over the white *desert* sand that a wagon-track or even footprints cut through it so every trail is plainly visible, and will be until the rain and *wind* smooth it all over again. As if to verify my theory of this land, nature now and then gives an illustration on a small scale. Little gorges form small table lands and grotesque little mountains, none higher than one's head. Truly there are "books in *running brooks, sermons in stones*, and God in every thing."

To verify the statements in regard to distances, I looked ahead at a mountain that I should call a mile away, but it took 40 minutes of pretty fast running to reach it. Judging from this, I feel sure that many peaks in the distance are fully 100 miles away. Just out of Mohawk Summit the beautifully laid-out lines of irrigating canals make one almost feel as if he were near a city. Alas! it is a city—of the dead past. Clouds resting against the summit of a mountain are now in view. The mountain-tops are *higher* than the clouds. Hello! just now the *clouds* are at fault. Instead of doing as orthodox clouds should, some beautifully fleecy clouds, a whole bunch of them, came right down and stood a little above the tree-tops and there loafed, doing nothing at all so long as we were in sight. My friend, the porter, says they sometimes "make a heap of trouble by bursting and letting all their water out so as to wash away the track." He says he doesn't like to see them come down and "stand around" that way.

"Mighty nice, this outdoor air is," said the gentlemanly and courteous porter. "If they were all like you, I would air up a good deal more. Almost all of them want to be shut up tight at night." You see, he has enough colored blood to like outdoor air. Our porters here are *nice boys*, and, with education, it seems to me they might grace a profession.

On the great Colorado desert we have more sand and less vegetation. The latest wonder is mounds of creamy-white sand, all covered with wavy ripples, that bring forth exclamations of surprise at their beauty. Even if it is the great *desert*, there are traces of heavy floods over the sand, and the railroad company has to make embankments, running away back into the desert, to conduct the water into the covered culverts under the track at regular distances.

To Huber.—A great big Indian sits on the ground, right out of the car window. He has two bows and a great lot of arrows. His hair is black, and comes down almost to his waist. There are lots of Indians here. Some real big boys don't wear any pants, and not much of any thing else. I should think they would be real ashamed to go round town that way. Their houses are made of weeds that look like cornstalks. The Indians all sit on the ground, instead of on chairs and benches.

GENERAL NOTES.

The view of the desert after leaving Mammoth Tank (Cal.) is beyond any thing that I supposed could be presented to the human eye. Off to the south it must, I think, be slightly dish-shaped, for no view of ocean or desert either ever gave me such a glimpse of boundless expanse. It does not seem as if even the fastest railroad train could reach the horizon in a whole day of steady run. And now, dear reader, the Colorado desert gives place to about 60 miles of ocean-bottom. It is simply black or leather-colored mud, full of cracks, just like the mud in any of our ponds, and this *60 miles* is all below the level of the ocean—in some places even 266 feet below. It was, without question, once the ocean-bed. The reason it is not now, is, that the dry atmosphere and dry ground take all the rainfall as soon, almost, as it comes. Great gullies are washed out in it by the rains; but before the water gets to the lowest point it is all taken up by an arid soil. The ground looks wet from the rain last night, and in some pits it stands in puddles, but nothing grows in this red mud, of any account.

Now, to cap the climax of my story, this ocean-bed is the spot where the celebrated mirage of California is always to be seen when the sun shines; and even as I write, I see out of the window the old ocean-bed away in the distance, shining like silver, with trees, bushes, and the shore line, with several mountains reflected on its surface. One might readily believe it to be the ghost of the past. The sun has now come out, and *its* image, and also the mountains, are reflected on it. It has been explained as the reflection of the bright sky in the alkali and sand; but the soil near the track shows now none of either. As the train moves, the water goes along with it, but it remains away back in the same track. Where it unites with the sky they look exactly alike, and in that case the trees and bushes stand up in the sky, with the reflections showing right under them.

At my right is a range of mountains with a great bank of clouds resting on them, like a soft pillow. On the left are the tallest mountains I have seen, with their peaks reaching up *through* the clouds. At this point, Salton, another track comes in, and a locomotive is just now in the midst of the "phantom lake"—pretty tangible evidence that the "wetness" is a myth.

The station just past gets its name from the fact that they make salt from the scrapings of the surface of the soil, and this may suggest something in regard to the mirage. The sun's rays catch the particles of salt in the soil, and the reflection, as it shows from a distance, looks like water. As I look behind and see even yet the islands and long strips of land, through and beyond the waters, the thought wells up, "How wondrous are thy works, O God!"

The clouds are now sliding off the mountain-tops, and are slipping down their sides. Little bits of clouds are scattered here and there, for all the world like the cotton the people were picking a few days ago.

To Huber.—There! it is just as I expected; the clouds have got caught on the rough rocky points, and left the mountains all stuck up with bits of cloud; and then, to fix it all, the sun has come through the clouds, and makes all the little cloud-scraps shine like fire, and the old mountain looks as if he were rigged out in his "Sunday-best," to go to a party. How I should like to climb up and put my hands into those bright clouds! See if I don't some day. A lady at my left says the folks here sometimes "wash their hands" in the clouds when they come down low enough. It seems very certain, any way, that the clouds and mountains are on very friendly terms with each other. The clouds are settling down over the mountains now, all around us, and the people here say it is going to rain.

There! something else has happened. While I was watching the clouds and mountains, wishing I could see how it was that a cloud rained on a mountain-summit, all at once I heard a sound of rushing waters; and down a little torrent came, right toward the track. A cloud had let go its damp burden, and then I knew how the rain cut those gullies. The water was full of sand and gravel. Now, then, this process, if repeated, will, in time, make all the hills and mountains a level plain. The clouds, mountains, sunshine, are all at work, and man is *soon* to direct them to do his will.

GENERAL NOTES.

Dear reader, I am nearing my journey's end. This has been a wonderful week to me—this week in a Pullman car. I can hardly say I have been tired one minute, nor have I once wished the trip were over. Shall I tell you something of this palace-car home? I have a little table by an open window, and pleasant neighbors. They have all been pleasant, and I feel that God's presence has been with me also. With this, all things are pleasant; but without it the world would have little real pleasure for me. On my little table are the book I have extracted from, and the printed schedule of the trip, giving name of all stops and hour of arrival, so that, with a correct timepiece (Waterbury, for instance), I can, without asking anybody, tell the name of any town and its points of interest. If I get faint before breakfast time, because I have been in the habit of having breakfast very early at home, the porter furnishes a very good breakfast at a half-hour's notice. Do you ask what all this costs? Well, if you take the best of every thing it will cost you five or six dollars per day for board and lodging; but if you wish to economize you can, if you choose, live quite moderately. A Pullman car costs $3.50 per day; but if you ride in an ordinary car, except during the night, it will be only $2.00. The regular price for meals at the dining-stations is the same as prices in the East—75 cents per meal; but there are lunch-counters at all eating-houses, or nearly all. Here you can get tea or coffee for 5 cents; bread and butter, sandwiches, large doughnuts, etc., at 10 cents each. On the Pullman car you get coffee for 10 cents; a large dish of baked beans, 20 cents; bread and butter, 10 cents; fried potatoes, 10 cents, etc. A good many carry lunch from home, and get only hot coffee of the porter. There are about 250 stations between New Orleans and San Francisco. A great part of these are right in the wilderness or desert, and many of them 10 miles or more from any habitation. How shall these stations away off here get up a city dinner? The daily trains each way are their only hope.* These bring all the supplies, even to water, when the water is scarce or alkaline. I will give you their bill of fare, and tell you what I consumed at one meal, at the same time. I wish first to say, I had never before had such an appetite as on this trip. One morning for breakfast I ate a good slice of turkey, same of chicken; slice of steak, ditto mutton; both fried and mashed potatoes; two hot biscuits; dish of peaches (very fine), piece of pie and cup of coffee. By noon I was ravenously hungry for just such a meal again. Oh, yes! I ate a dish of oatmeal, besides which they brought in the regular line. At the above rate it cost me almost as much at the lunch-counter. Now, there is a grand thought to me in regard to these 250 stations. Each one will soon be a town if not a city. In fact, many of them are already. More than a hundred of them, perhaps, are now just a single cheap building—hardly that. The occupant has a family; very soon he needs helpers. Pigs and chickens are brought. The chickens take kindly to the prairie or desert. Soon come a cow and a horse; then a store and blacksmith shop. You know the rest. With the advent of children, comes a school; and, may God grant, *very soon* a church. My friend, what better opening can there be for the millions who are asking "what to do, etc."? Do you just begin to see what my long story has to do with the one I wrote lately, "What to Do," etc.? Now, may God bless these great railroad companies. May he bless the pioneers of all races who start out to carve out these new homes; and may it all result in very truth in making the "wilderness to blossom as the rose, and the desert place to rejoice," as in the words of Holy Writ.

To be continued.

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* Immense quantities of canned goods are used in these wild regions. A great heap of empty tin cans heralds the approach to every station, and marks the location of every deserted camp on the desert.

GLEANINGS IN BEE CULTURE.

Published Semi-Monthly.

A. I. ROOT,
EDITOR AND PUBLISHER,
MEDINA, OHIO.

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MEDINA, DEC. 1, 1888.

Surely the mountain falling cometh to naught, and the rock is removed out of its place.—JOB 14: 18.

OUR subscribers now number 8428.

HOLDING FOR BETTER PRICES.

DON'T hold your honey too long to get good prices. While you are waiting they may come, and, lo! they're gone. The best prices usually rule about the holidays.

GONE TO HER REST.

OUR friend and correspondent, C. C. Miller, has just been passing through a severe affliction. His mother, after a long illness, has finally passed away to her rest. While no one is better prepared to meet trouble than is friend M., we tender to him our heartfelt sympathies.

OUR HOMES FOR THIS ISSUE.

NOTES OF TRAVEL will take the place of the usual matter in the department of Our Homes of this issue. Our readers will appreciate the old adage of "books in running brooks, *sermons* in stones, and God in every thing." While Our Homes takes up a little different line of thought, we feel sure there is not less of God in them this time.

USING A MAP TO FOLLOW UP THE NOTES OF TRAVEL.

OUR readers will find Notes of Travel much more realistic if they will follow up the trip on the map. If you can get hold of a railroad guide it will be just the thing. You know, in studying our Sunday-school lessons it helps a good deal if we understand where the children of Israel were at different periods in their history. So it will help you to understand the country better if you will follow up the line of travel.

"PUTTING IT OFF."

OUR colonies are all nicely prepared for winter, and have been for some time back. Now that the cold weather accompanied with snow is on hand it is a pleasure to think that they have had every needed attention. Reader, how is it with *your* bees? Are they nicely housed, or are they *tolerably* well prepared? or are they not prepared at all as a result of "putting it off"? If they are in the condition of the last named, don't say again that "bees don't pay" until you get over "putting it off," and don't ask next spring why your bees all died.

PAPER BOTTLES FOR HOLDING LIQUIDS.

IN a late issue of the Cleveland Weekly *Leader* is a paragraph to the effect that paper bottles have finally been manufactured which will hold liquids. It is claimed that the same are cheaper, and perfectly secure. Possibly we may see our dream of paper receptacles for holding honey realized very soon. Who will furnish some further information in regard to those paper bottles—that is, if such things are actually now made for the purpose set forth?

THE NEW EDITION OF THE A B C BOOK.

The following is what Prof. Cook says, on receipt of the new edition of the A B C of Bee Culture:

> *Dear Friend:*—The A B C is here. Many thanks. I wish to congratulate you. It is an excellent work, and I rejoice with you in its splendid sale. I think it the cheapest book I know of anywhere.
>
> A. J. COOK.
>
> Agricultural College, Mich., Nov. 19, 1888.

Such words, coming from an author who likewise has gotten out a bee-book, are thoroughly appreciated.

WHAT THE AUSTRALIAN BEE-KEEPERS ARE DOING.

WHILE we are now getting ready for the rigors of winter, the Australian bee-keepers are preparing for their honey season. From the last *Australasian Bee Journal* (Oct. 1st) we learn that the season has opened up unusually early. Swarming has already commenced, and the prospects are bright. Who knows but this is simply a forerunner of what we may expect when our spring comes? Certainly such a state of affairs will be very acceptable. Our world is so large, that we sometimes think that the whole of it is going into winter quarters. It is refreshing to hear the notes of spring, even though from a far country.

SPECIAL WINTER-REPOSITORY VENTILATION NOT NECESSARY.

THE subject for the October *Review* is Ventilation; and Mr. Hutchinson, in an editorial summarizing the views of the majority, says:

> No special arrangement is needed for the ventilation of a bee-repository. * * * * Ventilation, simply for the sake of securing fresher or purer air, finds but little support; while the few who plead for special ventilation do so almost entirely upon the ground that they can thereby more readily control the temperature. Some who have been to the expense of furnishing their cellars with subearth and special ventilation have finally abandoned it as not only useless but injurious. If bee-repositories are built sufficiently under ground it does not seem that ventilation would be very much needed for controlling the temperature.

MR. THOMAS WM. COWAN'S REVIEW OF PROF. COOK'S BEE-KEEPER'S GUIDE.

OUR esteemed co-editor of the *British Bee Journal* has reviewed Prof. Cook's book quite at length, and a very nice notice he gives it too. He considers more particularly the scientific portion of the work. It must be indeed gratifying to the professor to hear his book so favorably reviewed by such a scientist and skilled microscopist of another country. We dare say there are but few who are Mr. Cowan's equal in this or any other country, as a microscopist. In most matters pertaining to the anatomy of the bee, the reviewer agrees with the author, and even goes so far as to set aside the opinion of a microscopist and scientist of his own country, when the statements of the latter oppose those of Prof. Cook. Mr. Cowan remarks truly, that our Michigan friend has been especially careful to give due credit for his information, and, almost with the same breath, laments that Mr. Cheshire, the author of "Bees and Bee-Keeping" (who so severely criticised Prof. Cook), has not been so careful. Perhaps we should say we have received intimations of this before from other sources, and we are pained indeed to learn that such a beautiful work as Mr. Cheshire's—one which for typographical appearance and finish of engravings is simply superb, and which certainly does contain much that is original and valuable—is marred in the manner stated. Perhaps a satisfactory explanation can be made—at least, we hope so.

THE FOUL-BROOD BILL IN AUSTRALIA.

IN consequence of the general prevalence of foul brood in Australian apiaries, and the indisposition on the part of the apiarists to take active measures to stay the progress of this dreaded disease, a few of the more progressive bee-keepers have been working to secure the passage of a "Foul-Brood Bill"—a measure which would compel by law the proprietors of affected apiaries to either destroy affected colonies outright, or to take some steps toward curing the disease. We learn from the *Australasian Bee Journal* for Oct. 1st that the bill failed to pass in the late session of the House, but not because of the lack of proper support. There is, however, reasonable prospect that it will pass at the next session. It seems strange to us of America that legislation should be necessary to make the non-progressive bee-keepers do what is not only to the interest of themselves but to the interest of every lover of the honey-bee of that country. Unless the Australian bee-papers can do something to stay the ravages of foul brood in their midst, either by legislation or otherwise, bee-keeping will make but little headway, to say the least. We sympathize with our foreign brethren of the craft in their efforts, and wish them success.

AN INTRODUCTION TO ENTOMOLOGY.

THIS is the title of a text-book from the pen of Prof. J. Henry Comstock, of Cornell University. The part now published includes only the first half of the systematic part. It is prepared for the use of students in agricultural colleges, for private use, or for any one who desires to learn something about common insects. Special pains has been taken to describe those species that are of interest to farmers, and, if injurious, what remedies may be applied to exterminate them. The work is prepared somewhat on the plan of our school botanies; that is, it contains analytical keys, so that the reader may be enabled to find out to what family an insect belongs. The indications of the pronunciation of scientific names are made here and there through the book. The typography of the work is simply superb. In fact, it could not be otherwise, since it is printed by the Devinne Press, New York, the firm that prints the *Century* and *Saint Nicholas Magazine.*

Quite a remarkable feature of the work is, that the engravings are not only largely original, but have been executed by Mrs. Comstock, under the special supervision of her husband. They are made on wood, and we dare say that they are equal in finish to the engravings that ordinarily appear in the *Century.* Of course, it necessarily follows that they must be true to life. It is seldom, we think, that an entomologist has the double advantage of not only having a helpmeet, but a first-class wood-engraver. We feel quite sure that this work will take, and that farmers who are interested at all in learning about some of the insects connected with their pursuit will find it quite an acquisition to their library. The price is $2.00, and can be obtained of the author.

BIOGRAPHIES OF NOTED BEE-KEEPERS.

Believing that many of the A B C scholars would be interested in seeing the portraits, and in reading the biographical sketches of some of the prominent bee-men—men who have distinguished themselves in their line of apiculture—it is with no little pleasure that I now introduce them to you as far as it is possible to do so on paper. Dr. Miller, who, by reason of his natural fitness for the task, and who for long years has been more or less acquainted with the writings and doings of these men, has been detailed to write the sketches. The portraits executed by the Ives direct process of engraving are, I am happy to say, true to life, and have been so pronounced by those intimately acquainted with the subjects. Most of the wood-cuts are good. I now present to you a very natural likeness—an Ives reproduction—of the Rev. L. L. Langstroth, the father of American bee-keeping.

LORENZO LORRAINE LANGSTROTH.

Lorenzo Lorraine Langstroth was born in Philadelphia, Pa., Dec. 25, 1810. He graduated at Yale College in 1831, in which college he was tutor of mathematics from 1834 to 1836. After his graduation he pursued a theological course of study, and in May, 1836, became pastor of the Second Congregational church in Andover, Mass., which position ill health compelled him to resign in 1838. He was principal of the Abbot Female Academy in Andover in 1838-'39, and in 1839 removed to Greenfield, Mass., where he was principal of the High School for Young Ladies, from 1839 to 1844. In 1844 he became pastor of the Second Congregational church in Greenfield; and after four years of labor here, ill health compelled his resignation. In 1848 he removed to Philadelphia, where he was principal of a school for young ladies from 1848 to 1852. In 1852 he returned to Greenfield; removed to Oxford, O., in 1858, and to Dayton, O., in 1887.

At an early age the boy Lorenzo showed a fondness for the study of insect-life; but "idle habits" in that direction were not encouraged by his matter-of-fact parents. In 1838 began his real interest in the honey-bee, when he purchased two stocks. No such helps existed then as now, the first bee-journal in America being issued more than twenty years later, and Mr. Langstroth at that time had never seen or heard of a book on bee culture; but before the second year of his bee-keeping he did meet with one, the author of which doubted the existence of a queen! But the study of bees fascinated him, and gave him the needed outdoor recreation while engaged in literary pursuits, and in the course of time he became possessed with the idea that it might be possible to so construct a hive that its contents in every part might be *easily* examined. He tried what had been invented in this direction, bars, slats, and the "leaf-hive" of Huber. None of these, however, were satisfactory, and at length he conceived the idea of surrounding each comb with a frame of wood entirely detached from the walls of the hive, leaving at all parts, except the points of support, space enough between the frame and the hive for the passage of the bees. In 1852 the invention of the movable-comb hive was completed, and the hive was patented Oct. 5 of that year.

LORENZO LORRAINE LANGSTROTH.

It is well known, that, among the very many hives in use, no other make is more popular than the Langstroth; but it may not be so well known that, in a very important sense, every hive in use among intelligent bee-keepers is a Langstroth; that is, it contains the most important feature of the Langstroth—the movable comb. Those who have entered the field of apiculture within a few years may faintly imagine but can hardly realize what bee-keeping would be to-day, if, throughout the world, in every bee-hive, the combs should suddenly become immovably fixed, never again to be taken out of the hive, only as they were broken or cut out. Yet exactly that condition of affairs existed through all the centuries of bee-keeping up to the time when, to take out every comb and return again to the hive without injury to the colony, was made possible by the inventive genius of Mr. Langstroth. It is no small compliment to the far-seeing inventive powers of Mr. Langstroth, that, although frames of different sizes have been devised and tried, and improvements, so-called, upon his hive have been made by the hundred, yet to-day no other size of frame is more popular than that settled upon by him, and in general the so-called improvements are one after another dropped into oblivion, and thousands of hives are to-day in use among the best bee-keepers, scarcely varying, if varying at all, from the Langstroth hive as first sent out.

As a writer, Mr. Langstroth takes a high place. "Langstroth on the Hive and Honey-Bee," published in May, 1853, is considered a classic; and any contribution from the pen of its author to the columns of the bee-journals is read with eagerness. Instead of amassing the fortune one would think he so richly deserves, Mr. Langstroth is to-day not worth a dollar. He sowed, others reaped. At the date of his invention he had about 20 colonies of bees, and never exceeded 125.

In August, 1836, Mr. Langstroth was married to Miss Anna M. Tucker, who died in Jan., 1873. He has had three children. The oldest, a son, died of consumption contracted in the army. Two daughters still survive.

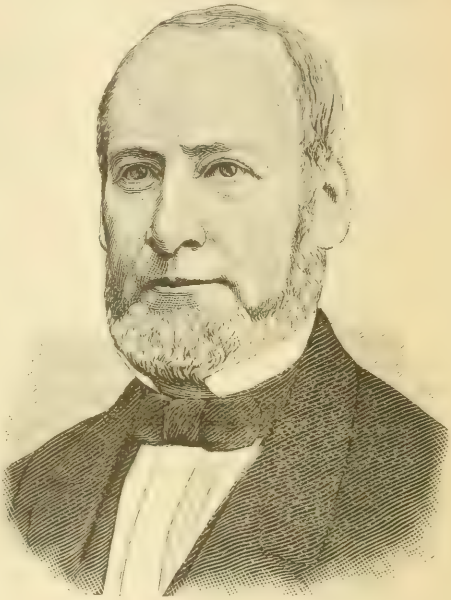
Since his 20th year, Mr. Langstroth has suffered from attacks of "head trouble" of a strange and distressing character. During these attacks, which have lasted from six months to more than a year (in one case two years), he is unable to write or even converse, and he views with aversion any reference to those subjects which particularly delight him at other times. Mr. Langstroth is a man of fine presence, simple and unostentatious in manner, cheerful, courteous, and a charming conversationalist.

In reply to a question, he writes, under date of March 26, 1888: "I am now a minister in the Presbyterian church. Although not a settled pastor, I preach occasionally, and delight in nothing so much as the Christian work. My parents were members of Mr. Barnes' church, in Philadelphia, the mother Presbyterian church in the United States."

MOSES QUINBY.

Moses Quinby was born April 16, 1810, in Westchester Co., N. Y. While a boy he went to Greene Co., and in 1853 from thence to St. Johnsville, Montgomery Co., N. Y., where he remained till the time of his death, May 27, 1875.

Mr. Quinby was reared among Quakers, and from his earliest years was ever the same cordial, straightforward, and earnest person. He had no special advantages in the way of obtaining an education, but he was an original thinker, and of that investigating turn of mind which is always sure to educate itself, even without books or schools. When about 20 years old he secured for the first time, as his own individual possession, sufficient capital to invest in a stock of bees, and no doubt felt enthusiastic in looking forward hopefully to a good run of "luck" in the way of swarms, so that he could soon "take up" some by the aid of the brimstone-pit. But "killing the goose that laid the golden egg" did not commend itself to his better judgment, and he was not slow to adopt the better way of placing boxes on the top of the hive, with holes for the ascent of the bees, and these boxes he improved by substituting glass for wood in the sides, thus making a long stride in the matter of the appearance of the marketable product. With little outside help, but with plenty of unexplored territory, his investigating mind had plenty of scope for operation, and he made a diligent study of bees and their habits. All the books he could obtain were earnestly studied, and every thing taught therein carefully tested. The many crudities and inaccuracies contained in them were sifted out as chaff, and, after 17 years' practical experience in handling and studying the bees themselves as well as the books, he was not merely a bee-keeper but a bee-master; and with that philanthropic character which made him always willing to impart to others, he decided to give them, at the expense of a few hours' reading, what had cost him years to obtain, and in 1853 the first edition of "Mysteries of Bee-Keeping Explained" made its appearance. Thoroughly practical in character and vigorous in style, it at once won its way to popularity. From the year 1853, excepting the interest he took in his fruits and his trout-pond, his attention was wholly given to bees, and he was owner or half-owner of from 600 to 1200 colonies, raising large crops of honey. On the advent of the movable frame and Italian bees, they were at once adopted by him, and in 1862 he reduced the number of his colonies, and turned his attention more particularly to rearing and selling Italian bees and queens. In 1865 he published a revised edition of his book, giving therein the added experience of 12 years. He wrote much for agricultural and other papers, his writings being always of the same sensible and practical character. The Northeastern Bee-Keepers' Association, a body whose deliberations have always been of importance, owed its origin to Mr. Quinby, who was for years its honored president—perhaps it is better to say its *honoring* president, for it was


MOSES QUINBY.

no little honor, even to so important a society, to have such a man as president. In 1871 Mr. Quinby was president of the N. A. B. K. A.

It is not at all impossible that the fact that so many intelligent bee-keepers are found in New York, is largely due to there being such a man as Mr. Quinby in their midst. The high reverence in which he was always held by the bee-keepers, particularly those who knew him best, says much, not only for the bee-master, but for the man.

On the occasion of the first meeting of the Northeastern Society, after the death of Mr. Quinby, Capt. J. E. Hetherington said, in his address, in a well-merited eulogium on Mr. Quinby: "Of the great amount of gratuitous labor performed by him, to advance the science of bee culture, the fraternity as a whole will never know, nor can they realize the information imparted to the numbers who flocked to see him personally, especially in the busy season."

"His life has been in every sense a life of usefulness, and not wholly devoted to the interests of bee culture, for he took a living interest in any movement he thought would benefit society; and as an advocate and helper in the temperance work he did no mean service. He possessed true kindness of heart, and regarded it as a religious duty to make all better and happier with whom he came in contact, and regarded that life a failure that did not leave the world the better for having lived."

ADAM GRIMM.

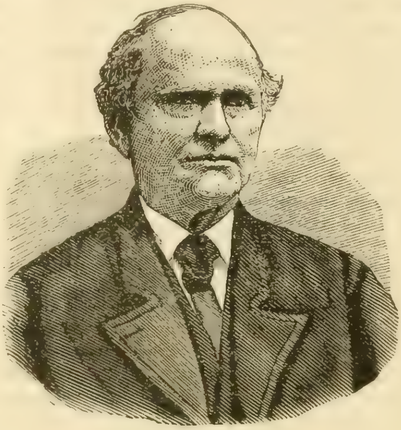
Adam Grimm was born in Germany, in 1824. His father kept a few hives of bees, in which Adam took deep interest, and did not rest satisfied till he himself became the owner of a few colonies. He emigrated to this country in 1849, settling at Jefferson, Wis., on a farm where he remained until his death, which occurred April 10, 1876. Soon after settling at Jefferson he obtained a few colonies of bees, and was so successful with them that at one time, when all other crops failed, his bees came to the rescue and helped him over the most critical time of his life.

In 1863 he had increased his apiary to 60 stocks of black bees in all sorts of box hives, and in 1864 he commenced to use frame hives, and transferred all his bees into them. In the same year, 1864, he bought his first Italians, and, as rapidly as possible, Italianized his apiary, and then sold large numbers of Italian queens all over the country.

About 1869 or '70 he imported, personally, 100 Italian queens, 60 of which were alive on their arrival at New York. Of this number he introduced 40 in his own apiaries. He increased his stock regardless of cost, every year, but had larger returns especially in late years, both from the sale of honey and bees. Queen-rearing he thought unprofitable. He had an intense enthusiasm in the business, and worked so hard in the apiary as probably to shorten his life. His success was the cause of many others engaging in the business.

He established a bank at Jefferson, of which he was cashier (his bees having provided the capital); but during the honey harvest he left his bank to the care of employés and went from one apiary to another, personally supervising all that was done.

We shall not soon forget two or three pleasant visits which we made at his home, with his interesting family. He told us that his wife remonstrated with him for working so hard, telling him that he now had a competence, and could give up his bees with the laborious care of so many; but he seemed to think the returns were large for the amount of labor, making the work still a pleasure, although no longer a necessity. He reached the number of 1400 colonies; and on one of our visits, when he had nearly 1000 colonies, he said, with a half-comical expression, "What would I do if all should die in the winter?" And then, the comical look giving way to one of German determination, he said, "I would buy some more; and with so many hives full of empty comb I would show you how soon I would fill them up again."



ADAM GRIMM.

His daughters, Katie and Maggie (both since married), were his able and faithful assistants; and the son, George, since his father's death, has assumed the principal care of the bees, for which he is well fitted by his previous training.

Mr. Grimm was trim built, of medium size, pleasant in manner, but especially impressing one as of great earnestness. He was very methodical, and kept an exact account of his business, showing, in a single year, $10,000 as the result of his bee-keeping.

CAPT. J. E. HETHERINGTON.

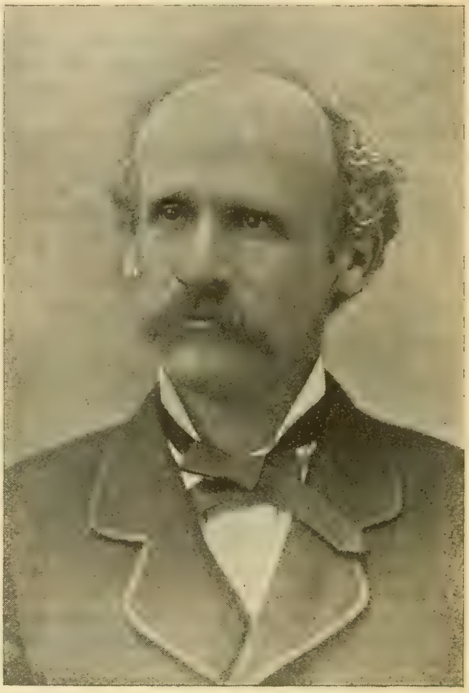
The reputation of being the most extensive bee-keeper in the world—a reputation which no one in the fraternity would lightly esteem — belongs to John E. Hetherington, better known as Captain J. E. Hetherington. He was born Jan. 7, 1840, and is one of the very few who have never had any other residence than the place of birth—Cherry Valley, N. Y. His bee-keeping career commenced at the early age of twelve years, when, with $5.00 earned for that special purpose, he bought a colony of bees, and at seventeen had marketed honey by the ton, averaging nearly 60 lbs. per colony, and this was secured in glass boxes, although box hives and the brimstone-pit were then in vogue. At this same time, in 1857, he invented a double-walled hive, with confined air-space between walls, applying for a patent on it; but after using two or three hundred of them he had the unusual good sense to discard his own invention when he found it did not come up to his expectations. He then used very successfully a straw hive, having at one time 1200 of them. With these hives he devised a system of artificial increase, not requiring the use of movable combs, and was so successful therewith that whole apiaries passed through the season without a single swarm.

In 1861, at his country's call he took up the life of a soldier, abandoning what was then the most extensive bee-business in the country. He enlisted as a private in Company D, 1st Regiment U. S. Sharpshooters, and advanced to the position of captain. His record shows that the position was fairly and honorably earned by his bravery. Three times he was wounded, and in 1864 was discharged from service on account of disability from his wounds. His army life broke down his health so completely that, for two years, the question of his life was one of great uncertainty. However, he took up bee-keeping with his old-time zest. Wide awake to the matter of improvements, always on the lookout for any thing better, a trial of movable frames soon convinced him they were indispensable, the new Quinby hive being adopted. The problem of preventing increase engaged his deepest attention. Every device heard of or thought of was tried, only to be condemned, until he settled down upon the plan of removing the queen at swarming time.

After a good many years' experience with outdoor wintering, with different hives, with and without packing, he was forced to the conclusion that the severity of his winters made outdoor wintering a risky business, and he abandoned it. Although more generally known as a producer of comb honey, he was one of the first to use the extractor, and considers it a great boon to bee-keepers. He believes in producing honey of whatever kind and in whatever style the market demands. Two years before the date of Wagner's patent he began experimenting with comb foundation, entering into the matter with great enthusiasm. To prevent the foundation from sagging, he tried, in turn, cloth, paper, and wood, as bases. None of these were satisfactory, and finally, in 1875, he experimented with wire. The difficulty of impressing sheets of wax with wire imbedded, without laying bare the wires in some places, suggested to him the feasibility of having the base flat instead of rhomboidal, as in natural comb. Perhaps he was led to this partly from the fact that, several years previous, Mr. Quinby and he had made complete comb of thin metal coated with wax; and he was the more ready to adopt this, because, in his experiments with metal combs, the bees had used the cells with flat base. Having abstained from the use of foundation in raising comb honey on account of the objectionable "fishbone," he now saw that, with flat-bottom foundation, he could keep up his well-earned reputation for producing comb honey of the finest quality; for with such foundation the finished product had a base even *more* delicate than that produced wholly by the bees. Upon this invention the captain secured a patent, covering all kinds of wire supports for foundation, including wired frames. He receives a royalty upon flat-bottom foundation from the manufacturers, Messrs. J. Vandeusen & Sons; but the very valuable use of wired frames is freely given to the public; and for this, grateful recognition should be cheerfully granted to the inventor.

Captain Hetherington is an excellent mechanic, making all his own supplies, extractors, box-making machines, etc., even to the dozen or more wheelbarrows used in his different apiaries. At the Centennial, his exhibit took the first prize. Previous to this he had made a large shipment of comb honey to England—no such extensive shipment, probably, having been made before. His bees have been increased to about 3000 colonies, kept in some fourteen apiaries, from two to twelve miles distant from his home. He hires the ground and takes all care of the bees, visiting them as often as may be necessary, whether his visits be two days or two weeks apart, although in the busy season it is a rare thing that each apiary is not visited each week. In the fall, all the bees are hauled home, weighed, equalized in stores, and prepared for winter.

Capt. H. was one of the founders of the New York State Bee-Keepers' Association, at that time called Northeastern, and, after Mr. Quinby's death, was its president. He was one of the original members of the National Society, and was one year elected president, an honor which he declined, on account of poor health.



CAPT. J. E. HETHERINGTON.

The captain's personal appearance is in keeping with his title, tall and commanding. He is an earnest temperance worker, an officer and worker in the Sabbath-school, which his children—two boys and a girl—attend, and is a regular attendant of the Presbyterian church, of which his wife is a member. He has a dislike for notoriety, and some have an impression that, like a turtle in its shell, he holds himself sullenly aloof, keeping valuable secrets to himself. Nothing can be further from the fact. He is remarkably genial and social, and has no secrets of any kind pertaining to bee culture that he would not gladly give to any one whom they might benefit. It is to be regretted that so little is seen from his pen. Possessed of an easy and pleasant style, and with an experience exceptionally extensive, whatever he does write is of value, and it is to be hoped that he may give fuller scope to his gift in that direction.

PROF. A. J. COOK.

Albert J. Cook was born Aug. 30, 1842, at Owosso, Mich. Those who are intimately acquainted with the man will not be surprised to learn that his parents were thoroughly upright Christians. The daily reading of the Bible, with comments by the father, re-enforced by the constant example of a chaste, honest, and industrious daily life, left its impress for life on the character of the son.

At the age of 15 he entered Michigan Agricultural College, where he graduated at 20, having been obliged during his course to suffer the sharp disappointment of suspending study a whole year on account of sickness, his health always having been rather delicate during his earlier years. Upon his graduation he went, on account of poor health, to California, where for three years he labored very successfully as a teacher. He then studied a portion of two years at Harvard University and Harvard Medical College with Agassiz, Hazen, and Dr. O. W. Holmes as teachers. In 1866 he was appointed instructor at Michigan Agricultural College, and in 1868 Professor of Entomology and Zoology in the same college.

PROF. A. J. COOK.

He has done and is doing a work unique in character, for he instructs the students, not only about insects in general, but about bees in particular. Every student that graduates goes all over the theory of bees, studies the bee structurally from tip of tongue to tip of sting, and goes through with all the manipulations of the apiary—that is, if there is any honey to manipulate; handles the bees, clips queens, prepares and puts on sections, extracts, etc. Probably in no other institution in the country, if in the world, is this done.

Prof. Cook is an active and influential member of the North American Bee-Keepers' Association, of which he has been president; was one of the originators of the Michigan State Bee-Keepers' Association, of which he was president for a number of years, and helped start the State Horticultural Society, being a member of its board for some years. He is widely known as a writer. His "Manual of the Apiary" has reached a sale of 14,000 copies, and "Injurious Insects of Michigan" 3000 copies. He is also the author of "Maple Sugar and the Sugar-Bush," of which 5000 copies have been published. He has written much for bee-journals, as also for the general press. He is a clear, practical writer, with a happy style.

In the battle waged against insect-foes, he has rendered valuable service. Remedies which he first advised are now common, and he was probably the first to demonstrate the efficacy and safety of Paris green for codlin moth.

Prof. Cook is of average height and weight, a charming conversationalist, and an intensely interesting lecturer. His very pleasant manner is only a fair index of a genial and loving spirit that, in an unusual degree, strives to put the best construction on the conduct and motives of every one, and throws a mantle of charity over their faults. His spirit of kindness extends to the brute creation; and on his farm, in which he is much interested, he has some fine-blooded stock; and in attempting to engage a hand to work upon the farm, the writer once heard him stipulate as essential that the employé must be kind to animals, and free from the use of liquor, tobacco, and profane language.

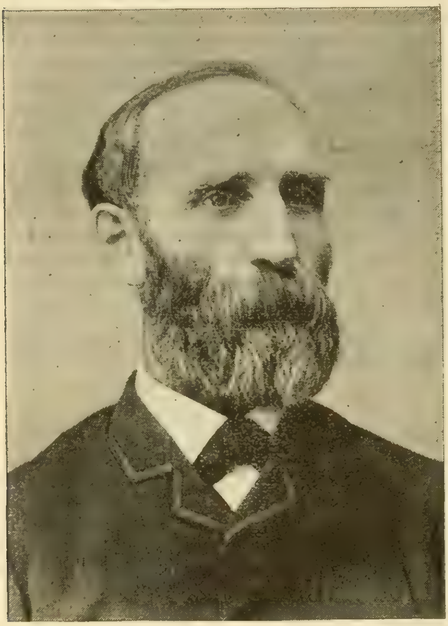
Prof. Cook is a great home lover, and proud of his wife and two children. An earnest Christian worker, he has for a number of years done a most important work in conducting a Sabbath-school class containing thirty or forty college students. It is to be regretted that excessive work has told unpleasantly on his health.

LYMAN C. ROOT.

Lyman C. Root was born in St. Lawrence Co., N. Y., Dec. 19th, 1840. The better part of his education was obtained in "brush college;" but before entering this he had two terms in the academy, two in St. Lawrence University, and a course in Eastman's Business College, where he graduated in 1865. The eight years following he was with Mr. Quinby, for the last five years his partner. It was his high privilege to be associated with him during what may be called the transition period of modern bee-keeping; during the time of the most rapid changes from box to frame hives; the time of the dissemination of the Italian bee, the introduction of the honey-extractor, the invention of the Quinby bee-smoker, the adoption of the one-comb section, and the perfecting of the new Quinby frame and hive. The various experiments that ended in the adoption of comb foundation were then in progress, and Mr. Quinby could have had no young man with him more enthusiastic and more helpful than the energetic L. C. Root, who released him from business cares, and gave him the needed leisure for study and invention. These were golden days for Mr. Quinby, well improved; and for Mr. Root nothing less, as he recalls the results obtained. Their supply-business rapidly grew to large proportions, and it was common for them to buy from three to five hundred colonies in box hives in the spring, transfer them to the new hive, and sell them to their customers in the different States. This necessitated a very large amount of exhausting work; but at this time Mr. Root knew nothing of sparing himself, and often did in one day what the average man would have taken two days for accomplishing.

In 1873 it was discovered that a rest was needed, and in the fall of that year he retired from the partnership and removed to Mohawk. But it seems impossible for a man of his temperament to rest, and we shortly find him extending his bee-business, going out in the early morning with his assistants to a bee-yard half a dozen miles away, and returning late at night with from two to three or more thousand pounds of extracted honey—the same process to be repeated the next day.

After the death of Mr. Quinby, Mr. Root took his supply-business. To all of this must be added his literary work as regular contributor to the *American Agriculturist* and the *Country Gentleman*, with frequent articles to all the bee-journals of the country; his presidency of the North American Bee-Society, and of the Northeastern Association, with his long and laborious exertions in establishing the latter, and finally his re-writing Mr. Quinby's book—a task on which he expended a greater amount of careful, conscientious work, and which caused him greater anxiety, than though it had been entirely his own. For this last work Mr. Root was peculiarly fitted by his long residence with Mr. Quinby, and knowledge of his methods.



LYMAN C. ROOT.

In keeping bees Mr. Root has preferred to raise extracted honey, and to keep about forty colonies in a yard. His crop was usually as much per yard as his neighbors' who kept twice the number in a place. The most of this success was due to skillful manipulations, improved honey-gatherers, and wise selection of locations; but after subtracting all these there probably remains something to be credited to moderate-sized yards. One fall he put into the cellar at the Hildreth yard forty stocks, took the same out in the spring without the loss of a single colony, and produced from them 9727 lbs. of extracted honey, 4103 lbs. of which was gathered in just seven days. Is better evidence needed that the author of the "New Bee-Keeping" is a practical bee-keeper?

Mr. Root takes an active part in every good work in the community in which he lives, and he is ready to make any possible sacrifice in working to elevate humanity. He takes great interest in temperance work, and has been an active member of the Good Templars since 1865. My first knowledge of Mr. Root came from his making a ten-mile trip and back after dark, over almost impassable roads, to our little village, for the purpose of organizing a lodge of Good Templars. Mr. Quinby and himself were two of those who voted the first Prohibition ticket in St. Johnsville, and he has been an active supporter of that party ever since.

In 1869 he was married to Mr. Quinby's only daughter, and his home is one in which intelligence, refinement, and happiness reside. I never met any one who appreciates his home, family, and friends, more than does Mr. Root. His wife has been a true helpmeet to him; and in the re-writing of Mr. Quinby's book she took a prominent part in the composition of the same—a service she had also rendered her father in his last revision. Mrs. Root has had entire charge of the education of their two daughters, the elder of whom has just passed from the home instruction into the high school, while the younger will take another year to graduate in the home course.

There are very few men who have had the large and varied experience with bees such as has fallen to the lot of Mr. Root. I suppose all such could be counted upon the fingers of one hand, for there is no branch of bee culture, either theoretical or practical, with which he is not familiar. He has been an extensive producer of both comb and extracted honey; is thoroughly familiar with the details of a large supply-business, including the purchasing of bees in box hives, and transferring and Italianizing the same; the rearing and shipping of queens, together with a large experimental knowledge and a large experience as writer and author. For the past year he has resided at the sea-shore, and, his numerous friends will be glad to learn, with health much improved; and we all unite in wishing that he may be spared to the bee-keeping fraternity for many years.

P. H. ELWOOD, *Gleanings, June, 1888.*

DR. A. B. MASON.

Dr. A. B. Mason was born in the town of Wales, Erie Co., N. Y., Nov. 18, 1833. His father and maternal grandfather were soldiers in the war of 1812. Dr. M. was raised on a farm, and all six of his brothers are farmers. At 17 years of age he taught successfully a school in DeKalb Co., Ill., for $14 00 a month, and "boarded around." At the close of this school he attended several terms at Beloit (Wisconsin) College. He then commenced the study of medicine, attending lectures during the winters of 1857 and 1858 at the University of Michigan, at Ann Arbor. In '62 he moved to Waterloo, Ia., and, the practice of medicine not being to his taste, he adopted dentistry as his life profession, having studied it in connection with medicine. He was president of the Northern Iowa Dental Association for two years.

In his 19th year he united with the church, and is an earnest Christian worker. For years he was an active, if not the most active, member of the church to which he belonged, being at one time superintendent of the Sabbath-school, church clerk, a trustee, and clerk of the board of trustees. He was a leader in Sabbath-school work at home and in adjoining counties. One year he was secretary of eight different organizations, four of them religious. Dr. Mason has always been an earnest temperance worker, neither he nor any of his children using tea, coffee, tobacco, or liquor in any form.

DR. A. B. MASON.

In 1869, a brother left in his care two colonies of bees till convenient to move them. Watching these aroused an interest in bees, and, as usual, the way to bee keeping in full was not long. In 1873, frequent and severe attacks of rheumatism obliged him to give up the office practice of dentistry, and he has since made a specialty of bee-keeping, making it a source of revenue.

In 1874 he moved to Ohio, where he has always been prominent in apicultural matters. Through his efforts the Tri-State Fair Association at Toledo was induced to offer premiums for the display of the products of the apiary, and this display has increased in attractiveness each year since. He was appointed superintendent of the department the first year, and still holds the position. He was chosen superintendent of the Apiarian Department of the Ohio Centennial Exposition, held at Columbus in 1888. In 1882 and '3 his apiary of 75 colonies suffered from foul brood, nearly every colony being infested in the latter year; but he cured it, and has had no return of the disease. Dr. Mason is a poultry-fancier, and was for four years secretary of the Buckeye Union Poultry Association.

Large in size, and of fine form, Dr. Mason is always prominent at conventions, where he is still more conspicuous by his never-failing joviality and good nature. In 1887 he was made president of the North American Bee-Keepers' Society. He was re-elected to that position for 1888-89.

CHARLES DADANT & SON.

Charles Dadant was born in a village of the old province of Champagne (now department of Haute Marne), France, May 22d, 1817. When a young man he was a traveling agent for a dry-goods firm, and afterward became a wholesale dry-goods merchant himself, subsequently leaving this business to associate himself with his father-in-law in the management of a tannery. In 1863 he came to the United States, intending to make a business of grape-growing, with which business he had been familiar from childhood, as it was the leading business of his native place. He did not know a word of English at this time; but by the aid of a dictionary he became acquainted with it, so that, four years later, he could write articles for the papers, but he never learned to pronounce English correctly.

In 1864, a love for bees, which had shown itself in childhood, asserted itself anew, and he obtained two hives of bees, from a friend. After trying movable-frame hives side by side with the old European "eke" horizontally divided hives, the latter were cast aside, and in 1868 he tried to get the French apiarists to try the Langstroth system, but was rebuked by M. Hamet, the editor of a French bee-journal, who has never ceased trying to fight against the invading progress of movable frames, although other bee-magazines have started in France which have done the work he might so well have done. About this time Mr. D. tried to import bees from Italy. In 1873 he went in person to Italy, but was not entirely successful till 1874, when he succeeded in importing 250 queens. These importations were kept up for years. In 1871 he started an out-apiary, and steadily increased the number of his colonies from year to year. In 1874 he took into partnership his son, Camille P. Dadant, then 23 years old, who

CHARLES DADANT.

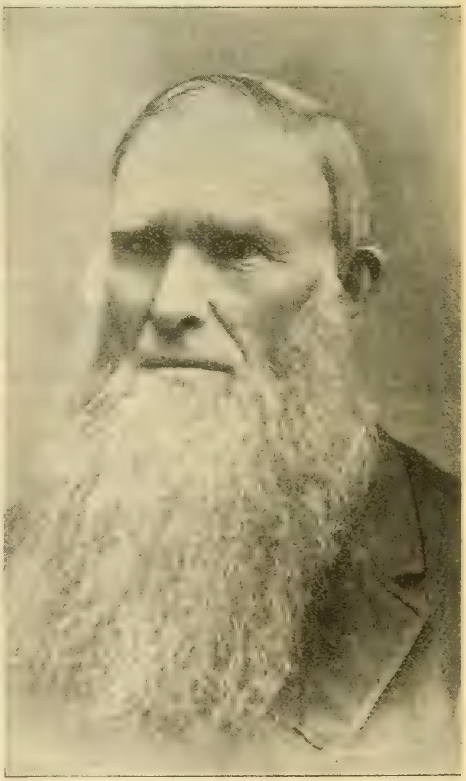
had been raised in the business. Since 1876 they have kept five apiaries, of 60 to 120 colonies each. They have built up a large trade in extracted honey —the product of their bees in 1884 having been 36,000 lbs. Messrs. Dadant & Son are among the largest, if not the largest, manufacturers of comb foundation in the world. Commencing with 500 lbs. in 1878, they reached in 1884 the enormous amount of 59,000 lbs. Both father and son have written no little for the American press. Mr. C. Dadant is better known as a writer for European publications, and has been one of the main expounders of American methods in Europe; and the Langstroth-Quinby-Dadant hive, introduced by him into the Old World, is largely used under the name of the Dadant hive. He published a *Petit Cours d'Apiculture Pratique* in 1874, in France. To him was committed the task of preparing a revised edition of Langstroth's book, and this he has also translated for publication in the French language.

CAMILLE P. DADANT.

EDWIN FRANCE.

Edwin France, of Platteville, Wis., is noted as a producer of extracted honey on a large scale. He was born in Herkimer Co., N. Y., Feb. 4, 1824. His father was a furnace-man, molding and melting iron; and, having a large family to support, had difficulty in making both ends meet. At the age of eight, young Edwin was sent to live with his mother's brother, returning home at 16. He then served an apprenticeship of four years at the furnace, when his father bought forty acres of timber, which they cleared up as a farm, working at the furnace winters. At the age of 24 his father died, leaving him the main stay of the family. He gave up the furnace, and worked part of the time making salt-barrels summers, and cutting sawlogs winters. About this time he got, and kept on this little place in the woods, a few hives of bees.

At the age of 32 he took the "Western fever," and settled on a 200-acre prairie farm in Humboldt Co., Iowa, marrying and taking with him a wife, leaving his mother in care of her older brother, a single man, amply able to care for her. Here again he kept a few bees. He lived here six years, farming summers and trapping winters, when the breaking-out of the war brought prices of farm products down to a ruinous point, and he went on a visit to Platteville, Wis., intending to return when times brightened. Desiring some employment, he answered an advertisement, "Agents wanted, to sell patent beehives," and was soon the owner of the patent for his county. He made the hives himself; and as at that time nearly every farmer kept bees, the business paid well, and he soon bought two more counties. In his trades he got some bees, his starting-point as a bee-keeper. These he increased until in 1871, when he went into winter quarters with 123 colonies, bringing out 25 in the spring, and 14 in the spring following. Enlarging his hives, and studying the wants of the bees, led to better success, reaching 500 colonies in the spring of 1888, kept in six apiaries. In 1886, from 395 colonies he took 42,489 lbs. of honey, increasing to 507. In 1885 his 320 colonies averaged 113 lbs. each, and his 410 colonies in 1887 averaged 12 lbs. each. He owns eleven acres in the city limits of Platteville, devoted to garden truck and berries.



EDWIN FRANCE.

Mr. France and his son do all the work, except during a few weeks in the busy season, when he hires eight assistants from 12 to 18 years old. The whole ten go to one of the different apiaries each day, making a sort of picnic, and returning at night. Mr. F. has not written much for the press; but what he has written bears the marks of ripe experience.

PHILIP HENRY ELWOOD.

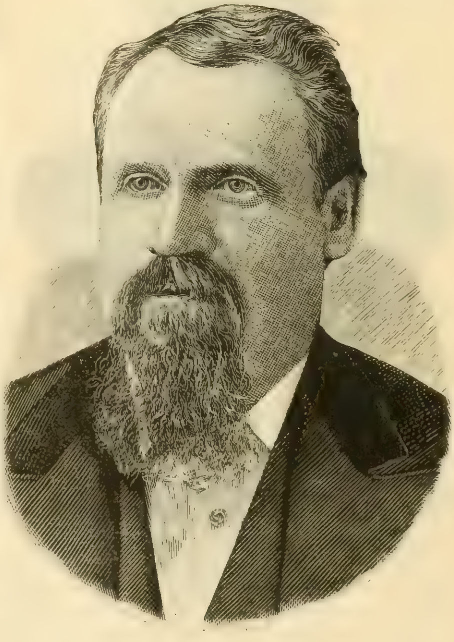
Philip Henry Elwood is a good illustration of the healthfulness of bee-keeping as a vocation. At the age of 23 he was advised by his physicians to abandon a college course and choose some outdoor occupation, and now P. H. Elwood the bee-keeper is known as a man who tips the scales at 225 lbs. Soon after leaving school he was offered a desirable position as teacher of natural sciences in a high school in Michigan, but the offer was refused. In 1872, at the age of 25, he commenced bee-keeping as a partner of Captain Hetherington. This partnership was profitably continued for five years, when he removed a distance of ten miles to Starkville, Herkimer Co., N. Y., where he has since remained, to carry on the business of raising honey. He was happily married in 1879. Mr. E. is a conservative bee-keeper, little inclined to rush after new things simply because they are new, and is sometimes accused of being at fault in not placing sufficient confidence in the recommendations of others. He cares more to be sure that his plans and implements are such as experience proves the best, than to be constantly trying to invent something new. He uses the small Quinby hive, and, after giving a thorough trial to outdoor wintering, he winters exclusively in cellars. The larger part of his comb honey is put up in two-pound glassed boxes, and it was his honey that took the first premium at the Paris World's Exposition, exhibited in the same packing-cases in which it was shipped from his apiary. He prefers Italian hybrids, and keeps about 800 colonies.

P. H. ELWOOD.

Conservative in most things, he was the first man in his county to cast a Prohibition vote, and in 1887 was run for member of the Assembly. However earnest he may be in other things, he believes that the preparation for the life to come is of infinitely more importance than any thing else in this life.

GILBERT M. DOOLITTLE.

Gilbert M. Doolittle was born Apr. 14, 1846, in Onondaga Co., N. Y., not far from the home of his later years at Borodino, N. Y. During his childhood he often did duty by watching swarms from 10 to 3 o'clock, and at the age of eight was given a second swarm for the hiving. A thief, however, emptied the hive of its contents; and as foul brood prevailed in that region during several of the succeeding years it was not till the spring of 1869 he laid the foundation of his present apiary by purchasing two colonies of bees. Like many others he commenced with great enthusiasm, diligently studying all the books and papers obtainable, but, unlike many others, he has never allowed his enthusiasm to die out, and is to-day a diligent student of the ways of the busy bee. It is rare to find any one so familiar with what has been done and written relative to bee-keeping. As a business, Mr. D. has made bee-keeping a success, although he has never kept a large number of colonies, principally if not wholly because he prefers to keep no more than he can manage without outside help. In 1886 he wrote in the *American Bee Journal*, "From less than 50 colonies of bees (spring count) I have cleared over $1000 each year for the past 13 years, taken as an average. I have not hired 13 days' labor in that time in the apiary, nor had any apprentices or students to do the work for me, although I have had many applications from those who wished to spend a season with me. Besides my labor with the bees, I take care of



G. M. DOOLITTLE.

my garden and a small farm (29 acres); have charge of my father's estate, run my own shop and steam-engine, sawing sections, hives, honey-crates, etc., for myself and my neighbors; write for seven different papers, and answer a host of correspondence." Mr. D. works for comb honey, and also makes quite a business of rearing queens for sale. Although a prolific writer, his fund of information never seems exhausted, and he is uniformly practical and interesting. His writings give evidence of the close and careful thinker. In personal appearance Mr. D. is of commanding presence, being large and well formed, of sandy complexion, and in manner he is a genial Christian gentleman.

JAMES HEDDON.

James Heddon was born Aug. 28, 1845, in the Genesee Valley, New York. Early in life he removed to the West; and for years Dowagiac, Mich., has been a name well known to bee keepers, because it is the home of James Heddon. Endowed by nature with a mind of remarkable vigor, he lacked the advantages of much training in schools, and possibly also its disadvantages. His entrance into the ranks of bee-keepers, about the year 1869, may probably be traced to the fact that he married Miss Hastings, the daughter of a bee keeper, serving a year's apprenticeship with the father. Few have shown such faith in bee-keeping, for Mr. H. was the first in the State, and one of the first in the country, to make a specialty of that pursuit, and few have shown that their faith was so well founded; for, commencing with nothing, he credits his capital, amounting to thousands, entirely to the aid of the little busy bee. His apiaries have some years contained between 500 and 600 colonies. In 1879 he added the supply-business.

JAMES HEDDON.

Mr. Heddon is slight and wiry in figure, below the medium size, of sandy complexion, and intensely nervous in temperament. This nervous tendency leaves its strong impress on his writings, and more especially on his speaking. To that, and to the state of health resulting from it, may perhaps be attributed a fierceness in controversy, especially in his earlier writings, that would hardly allow one, who had never seen him, to give him credit for the affability that he really possesses. As might be expected, both in writing and speaking he is possessed of great vigor. He is a prolific writer, and, when not too much carried away by controversy, eminently practical. In 1885 he published "Success in Bee Culture," a practical work, giving his plans of bee-management, as also a description of the Heddon hive invented by him—a hive having the brood-chamber horizontally divided in two sections, with the intention of making manipulation by hives rather than by frames. He is also editor and publisher of the Dowagiac *Times*.

Among his inventions, aside from the Heddon hive, are the Heddon surplus case and the slat honey-board, so extensively used. He is the father of the "Pollen Theory." Mr. Heddon is by no means guided by what is merely popular, seeming rather to take a delight in the opposite, and for a time championed box hives and black bees after their general abandonment. He now prefers a carefully bred cross of Italians and blacks.

D. A. JONES.

Most prominent among the bee-keepers of Canada is Mr. D. A. Jones, of Beeton, Ontario. If for no other reason, his name deserves a place in the history of bee-keeping as the man who undertook to scour foreign lands and the isles of the seas for new races of bees. Few would have undertaken such a daring enterprise as that of Mr. Jones, when, in 1879, he set out in person, at great expense, and amid dangers and exposures, visited Cyprus and Palestine in search of the races of bees which he not only sought but found. As a fitting adjunct to this undertaking he established, on separate islands in the Georgian Bay, apiaries where the different races might be kept in purity, or crossed at will. Such things as these, of which the public enjoys the benefit, are usually undertaken by government; but Mr. Jones drew on his private purse, and estimates that he was poorer by several thousand dollars for the operation.

Oct. 9, 1836, D. A. Jones was born near Toronto, Canada. Until of age he worked on the farm with his father. He then engaged in different occupations, bringing up in Illinois about 1860, where he worked a few months with a stockman. In the fall of the same year he attended a large exhibition at Chicago, where he was intensely interested in seeing a man exhibiting the Langstroth hive, manipulating the combs covered with bees, and explaining the advantages of movable combs. Mr. Jones took measurements of the parts of the hive, a fresh interest being awakened, for his father had been a bee-keeper, and among his earliest recollections was that of being carried by his father to the hives to watch the bees. At the age of five he was fairly versed in what was then generally known as to the habits of bees; and before the age of fifteen he hunted and captured bees, without the aid of his father.

Mr. Jones married and settled in Beeton, where he engaged in merchandising, afterward becoming so much interested in real-estate affairs and improvement of his village that he sold out his store, and thus had leisure to gratify his taste for bees, and commenced with two colonies in Langstroth hives. Afterward he established a much larger store, became profitably interested in railroads and other matters, but still found time to give attention to bees, until his two colonies became several apiaries. He has built up a large trade in extracted honey, and has given great impetus to exhibitions of honey at fairs, especially in very small packages.

D. A. JONES.

In 1878 he commenced in a small way to manufacture supplies, and about six years later built a large factory. In 1886 the business had grown to such proportions that a company was chartered, with the title, "The D. A. Jones Co., Limited," and a capital of $40,000.

The *Canadian Bee Journal*, the first dollar weekly in the world, is another child of Mr. Jones, in which he may justly take pride.

Mr. Jones, in spite of his earnestness and energy, is a very sociable and jovial person, always ready to communicate to others the result of his investigations. He is of medium size, rather inclined to stoutness, and of sandy complexion. He is still active in public affairs, but, better than all, is a professing Christian.

W. Z. HUTCHINSON.

W. Z. Hutchinson is one of the many, who, although born in the East, have spent in the West all of life that can be remembered. Born in Orleans Co., N. Y., Feb. 17, 1851, he was taken, four years later, with his father's family, to the dense forests of Genesee Co., Michigan, where his father literally hewed out a farm. W. Z. had the full benefit of pioneer backwoods life; and although hunting, trapping, etc., had a full share of his time, his natural bent was toward machinery. This passion for machinery was, as he advanced in his "teens," put to practical use by building a turning-lathe, and beginning the manufacture of spinning-wheels and reels. These he continued to make for several years, peddling them out in the surrounding country. At eighteen he began teaching school winters. While thus "boarding around," a copy of King's "Text-Book" fell in his way. It was to him a revelation. He learned that the owner had about fifty colonies of bees down cellar, which he was not long in asking to see, and for the first time he looked upon a movable-comb hive—the American. The next season, in swarming time, he visited this friend, and the charms of bee-keeping appeared greater than those of any other business. Although not really owning a bee till the lapse of many months, he became then and there in spirit a bee-keeper, reading all he could find on the subject, and visiting bee-keepers. The introduction of woolen-factories compelled him to abandon the spinning-wheel trade; and one afternoon in June, while peddling out his last lot, he made a sale to a farmer about 16 miles from home; and although it was only about four o'clock, he begged to be allowed to stay all night, urged thereto by the sight of a long row of brightly painted hives. This bee-keeper had an only daughter, and the reader can weave his own romance, upon being told that the father, Mr. Clark Simpson, became the father-in-law of Mr. Hutchinson.

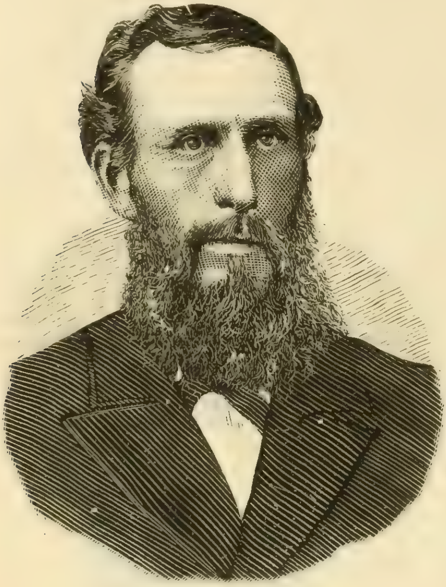
In 1877 he began bee-keeping with four colonies, and an excellent theoretical knowledge of the business. Mr. H. has never kept a very large number of colonies, but has made a comfortable living by the sale of comb honey. In 1887 he removed from Rogersville to Flint, Mich., where he established the *Bee-Keepers' Review*, which fills a place not previously occupied, and is edited with the ability that might be expected from one who has been so favorably known through his many articles published in the bee-journals and other papers.

W. Z. HUTCHINSON.

In appearance, Mr. H. might more readily be taken for a professional man than for a farmer or bee-keeper. Tall, straight as an arrow, with side whiskers, and rather dark complexion, he presents a conspicuous figure at the gatherings of bee-keepers, where he is always in office, whether the gathering be local or national.

BIOGRAPHIES OF NOTED BEE-KEEPERS.

H. R. BOARDMAN.



H. R. BOARDMAN.

H. R. Boardman was born Apr. 2, 1834, in Swanzey, N. H., and at about one year of age he was taken to what was then the wilderness West, and during nearly all his life his present place of residence, East Townsend, Ohio, has been his home. The district school was his only college, unless we take into account the opportunities for development afforded by an acquaintance with the wild woods, abounding in deer, turkies, and other wild game. Mr. Boardman says, "The wild woods have ever possessed a charm for me. The pages of Nature's great open book have furnished me much with which to make life pleasant; and it is this æsthetic taste, no doubt, that has led me to my present occupation of bee-keeping." Mr. B. has a cabinet of mounted specimens of birds, prepared by his own hands, in which he takes a pride next to that which he takes in his apiaries.

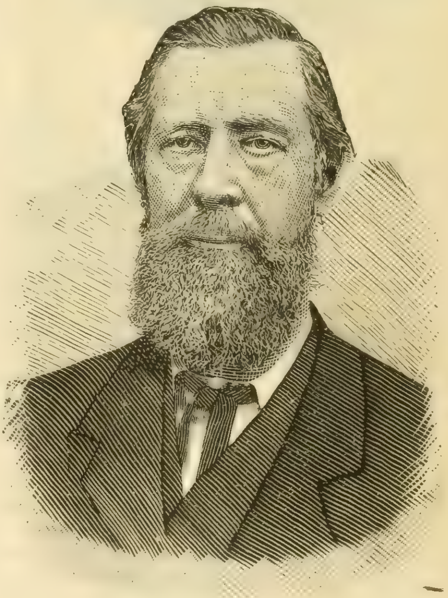
Mr. Boardman's training as a bee-keeper commenced at a very early age. His father was a bee-keeper of the old school, and a very successful one. By means of box hives and the brimstone-pit he secured honey for the family table, and also some to sell, nearly every season. Later on, boxes were put on top, the boxes sealed around with lime mortar or moist clay, to exclude the light entirely, in order to induce the bees to commence work in them. One year his father bought 25 colonies of bees early in the season, away from home; and as there was no one to watch them at swarming time, he tiered them up by putting an empty hive over each colony, there being a hole through which the bees could pass into the hives above. In the fall the bees were brimstoned, and the honey hauled home, nearly a ton! Considerable *wild* honey was also obtained from the trees. The abundance of these wild bees before tame bees were abundant, suggested, Mr. B. thinks, that they were native.

Mr. Boardman is a careful observer, doing his own thinking, and adhering to plans which he has found successful. He produces comb honey, and keeps 400 or 500 colonies in four apiaries. He is *remarkably* successful in wintering. He aims to secure a moderate yield with moderate increase, and has thus carried on a profitable and increasing business.

Mr. B. is of spare figure, hardly up to medium size, earnest in manner, suggesting a person of great decision and activity. Although not a prolific writer, whatever has come from his pen is practical and valuable.

CHARLES F. MUTH.

Charles F. Muth is one of our veterans in bee culture. Years ago, when we first began to talk about movable-frame hives and Italian bees, he was one among us, and a man always posted. Of late years he has been pretty well known by his articles on the treatment of foul brood; and as he succeeds in curing it in his own apiary, we think it fair to presume he would in any apiary, if he had proper facilities. Although for many years friend Muth's apiary was on the roof of his store, or, rather, store and dwelling, it is now situated in a sort of open veranda, the open side being next to the river. Through this open side the bees go out and in. The hives are placed a convenient distance from the floor, and arranged with alleys between them. Although he has some thirty or forty colonies grouped together quite closely, they seem to go out and in, and find their respective hives just as well, for aught we could see, as those located in the open air. The bees we saw there last fall were beautifully marked, and very docile. We herewith present you his picture.



CHARLES F. MUTH.

Friend Muth has, of late years, been more widely known as a great honey *buyer*, than as a *producer* of honey on a large scale. Perhaps no man in the world has bought and sold more honey than he has; and one very pleasant thing about it is, that in all these large business transactions all his customers seem to be warm personal friends.

While at the convention last fall, the subject of the palmetto honey of the South came up. Friend Muth was called upon to tell what he knew about it. In order to impress upon us that the honey was of excellent quality, he made the remark that on one shipment which he had engaged for 8 cents a pound, he afterward paid the man 10, because it went so much beyond his expectations. At this point Prof. Cook arose and interrupted him.

"Friend Muth," said he, "I wish to ask just one question right here."

"Very well, go on," said our jovial friend.

"I want to know," said friend Cook, "if the convention are to understand that this is the kind of a man you are."

"It is the kind of a man I was *that* time," was the prompt reply. And we really believe that that *is* the kind of a man friend M. has always been, and we trust always will be. *Gleanings, June, 1883.*

MRS. LUCINDA HARRISON.

Among women, no bee-keeper is more widely or favorably known than Mrs. Lucinda Harrison. Born in Coshocton, O., Nov. 21, 1831, she came, in 1836, to Peoria Co., Ill., her parents, Alpheus Richardson and wife, being pioneer settlers. Public schools in Peoria at that time were undeveloped, and educational advantages few; but her parents gave her the best that could then be had in private schools. Her brother Sanford was a member of the first class that graduated from Knox College, Galesburg, Ill., and she then spent a year at an academy taught by him at Granville, Ill. She taught school from time to time till 1855, when she married Robert Dodds, a prosperous farmer of Woodford Co., Ill., who died two years later, leaving her a widow at 25. In 1866 she married Lovell Harrison, one of the substantial citizens of Peoria, from that time making Peoria her home.

MRS. LUCINDA HARRISON.

Mrs. Harrison thus describes her entrance into the ranks of bee-keepers:

"In 1871, while perusing the Reports of the Department of Agriculture, I came across a flowery essay on bee culture, from the graceful pen of Mrs. Ellen Tupper. I caught the bee-fever so badly that I could hardly survive until the spring, when I purchased two colonies of Italians of the late Adam Grimm. The bees were in eight-frame Langstroth hives, and we still continue to use hives exactly similar to those then purchased. I bought the bees without my husband's knowledge, knowing full well that he would forbid me if he knew it, and many were the curtain lectures I received for purchasing such troublesome stock. One reason for his hostility was that I kept continually pulling the hives to pieces to see what the bees were at, and kept them on the war-path. Our home is on three city lots, and at the time I commenced bee-keeping our trees and vines were just coming into bearing, and Mr. Harrison enjoyed very much being out among his pets, and occasionally had an escort of scolding bees. Meeting with opposition made me all the more determined to succeed. 'Nothing succeeds like success.' I never wavered in my fixed determination to know all there was to know about honey-bees; and I was too inquisitive, prying into their domestic affairs, which made them so very irritable."

Her perseverance was rewarded. In time Mr. H. ceased opposition, became himself interested in the bees, and helped take care of them, saying he believed that bee-keeping would add ten years to their life. For a number of years her apiary has contained about 100 colonies, she being prevented from doing as much with the bees as she otherwise would, by ill health and family cares; for, although childless herself, she has been a mother to several orphan children.

Mrs. H. is best known as a writer, her many contributions to the press being marked by vigor and originality, with a blunt candor that assures one of her sincerity. She has been bee-editor of the *Prairie Farmer* since 1876, and has written for Colman's *Rural World*, and occasionally for other papers. She has held important offices in the N. A. B. K. A., and also in other societies. She credits bee-keeping with making life more enjoyable, opening up a new world, and making her more observant of plants and flowers.

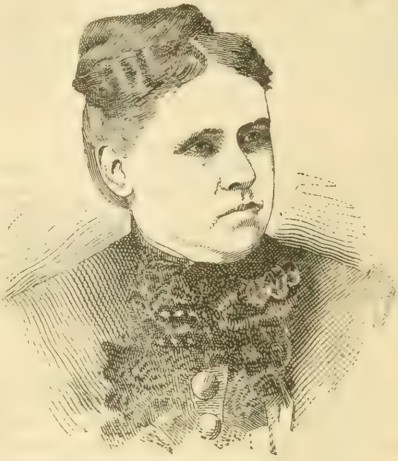
MRS. SARAH J. AXTELL.

Mrs. Sarah J. Axtell is one of the women prominently known among bee-keepers, although she protests that her husband, Linus C. Axtell, rather than herself, should have the prominence. Mr. Axtell is a farmer living at Roseville, Warren Co., Ill., his wife having been an invalid most of her life. In 1871 they got their first colony of bees. As these increased, Mrs. Axtell's interest in them increased, and with increase of interest in the bees came increase of health, Mrs. A. finding that, after a summer spent in the open air with her bees, her health is so much improved that she is able to withstand the winter confinement to which she might otherwise succumb. Since 1877 the bees have been kept in two apiaries. Mr. A. hires help to do the work of the farm, which he superintends, but spends most of his time in apiculture. At the beginning of the season he goes daily to the out apiary, doing the work there; comes back in the evening, and makes preparations for both apiaries for the next day. Mrs. A., with the help of the hired girl, takes care of the home apiary, puts starters in sections, and does other light work pertaining to the business. By harvest-time, swarming is nearly over and the work is reversed, Mrs. A. going daily to the out-apiary, while Mr. A. takes care of the home apiary and helps harvest the farm crops. Their success has been varied, the yield per colony ranging from almost nothing to more than 216 lbs. per colony in 1882, when from 180 colonies were taken 39,000 lbs. of extracted honey. Mrs. A. is deeply interested in the work of missions, and an additional reason for the beneficial effects of bee-work upon her health lies in the fact that she has constantly with her the delightful stimulus of the thought that every pound of honey secured allows her to devote an additional amount to the cause so dear to her heart. Although not a prolific writer, Mrs. Axtell is practical and interesting.

MRS. SARAH J. AXTELL.

MRS. MAHALA B. CHADDOCK.

The subject of this sketch was born in Grant Co., Ind., Dec. 15, 1844. She married, at the age of 22, Mr. John Chaddock, a prominent farmer of Fulton Co., Illinois. In 1872 she hived a runaway swarm of black bees, which had clustered upon a peach-tree, and this was her first start in bee culture. I was then writing bee-letters to the *Prairie Farmer*, and Mrs. Chaddock was a contributor to that paper, under the *nom de plume* of "Hail Columbia." She wrote to me, asking some questions about bees; and when I had read GLEANINGS I would send it to her to read and return. She became a subscriber and a contributor. I sold her an Italian queen in 1874, and she Italianized her apiary. Her apiary is not large, as it has never numbered more than 30 colonies; but she has sold bees nearly every year, and is now wintering 17 colonies.



MRS. MAHALA B. CHADDOCK.

In the fall of 1878 I visited her, driving there with my horse and buggy, the distance being 60 miles. It was dark and raining when I reached her pleasant home, and I was weary with my drive; but my weariness was soon dispelled by the cheery welcome I received from her and her excellent husband. During my stay I examined her apiary, and soon saw that it was well cared for, and the whitest of comb honey graced her table. I never ate finer canned peaches than at her table, which were sweetened with honey. At the time of my visit she was a woman of splendid physique, abounding in health and strength, and said she enjoyed taking her ax and cutting up trees after they were felled. I thought I never saw a person possessing equal magnetism.

Mrs. C., by her energy and varied abilities, is a fair type of the American country-woman, a class peculiar to this land, and scarcely possible in any other. That she may regain her former health and strength, and that there may be many years of usefulness in store for her, is the sincere wish of all.

MRS. L HARRISON, *Gleanings*, *Feb.*, 1888.

DR. C. C. MILLER.

One among the very few who make bee-keeping their sole business is Dr. C. C. Miller, of Marengo, Ill. He was born June 10, 1831, at Ligonier, Pa. With a spirit of independence, and a good deal of self-denial sometimes bordering upon hardship, young Miller worked his way through school, graduating at Union College, Schenectady, N. Y., at the age of 22. Unlike many boys who go through college self-supported, running into debt at the end of their course, our young friend graduated with a surplus of some seventy odd dollars, over and above his current expenses at school; but, as we shall presently see, it was at the expense of an otherwise strong constitution. He did not know then, as he does now, the importance of observing the laws of health. Instead of taking rest he immediately took a course in medicine, graduating from the University of Michigan at the age of 25. After settling down to practice, poor health, he says, coupled with a nervous anxiety as to his fitness for the position, drove him from the field in a year. He then clerked, traveled, and taught. He had a natural talent for music, which by hard study he so developed that he is now one of the finest musicians in the country. If you will refer to the preface to Root's Curriculum for the Piano (a work, by the way, which is possessed or known in almost every household where music is appreciated), you will see that this same Dr. Miller rendered "much and important aid" to the author in his work. In this he wrote much of the fingering; and before the Curriculum was given to the printers for the last time, Mr. Root submitted the revised proofs to the doctor for final correction.

DR. C. C. MILLER.

His musical compositions are simple and delightful, and you would be surprised to learn that one or two of the songs which are somewhat known were composed by Dr. Miller. Speaking of two songs composed by friend M., especially to be sung at a bee-keepers' convention, Dr. Geo. F. Root, than whom no one now living is better able to judge, said, "They are characteristic and good." Dr. Miller also spent about a year as music agent, helping to get up the first Cincinnati Musical Festival in 1873, under Theodore Thomas. Dr. M. is a fine singer, and delights all who hear him. Upon hearing and knowing of his almost exceptional talents for music, we are unavoidably led to wonder why he should now devote his attention solely to bee-keeping; and this wonder is increased when we learn that he has had salaries offered by music-publishing houses which would dazzle the eyes of most of us. But he says he prefers God's pure air, good health, and a good appetite, accompanied with a smaller income among the bees, to a larger salary indoors with attendant poor health.

As has been the case with a good many others, the doctor's first acquaintance with bees was through his wife, who, in 1861, secured a runaway swarm in a sugar-barrel. A natural hobbyist, he at once became interested in bees. As he studied and worked with them he gradually grew into a bee-keeper, against the advice and wishes of his friends. In 1878 he made bee-keeping his sole business. He now keeps from 200 to 400 colonies, in four out-apiaries. All the colonies are run for comb honey, and his annual products run up into the tons. He is intensely practical, and an enthusiast on all that pertains to his chosen pursuit. Though somewhat conservative as to the practicability of "new things," he is ever ready to cast aside the old and adopt the new, providing it has real merit. Although he claims no originality, either of ideas or of invention, he has nevertheless given to the bee-keeping world not a few useful hints, and has likewise improved devices or inventions otherwise impracticable.

As a writer he is conversational, terse, and right to the point. Not unfrequently his style betrays here and there glimmerings of fun, which he seems, in consequence of his jolly good nature, unable to suppress. His "Year Among the Bees" (see Book Notices), his large correspondence for the bee-journals, and his biographical sketches preceding this, as also his writings elsewhere in this work, are all characteristic of his style.

Of him as a man, a personal friend, and a Christian brother, it affords me great pleasure to speak. Physically he is rather under the medium height, thickset, and of an exceptionally pleasant face. To know him intimately, and to feel his intense friendship, is to know a near kinsman indeed. There are few more devoted Christians than Dr. C. C. Miller. He has always been active in Christian work, and is now superintendent of the Sunday-school of the church which he attends regularly as might readily be imagined. He uses his voice and his talents for music to the glory of God, in a way which would seem sure to bring conviction to the unconverted. I have heard him sing for Christ, and I know whereof I speak. May he live long to benefit bee-keepers, and to glorify Christ!

As it would hardly be appropriate for the doctor to write his own sketch, he has requested me to do so. I will therefore sign myself as below. If you wish to know who *he* is, see preface.

ERNEST.

SPECIAL NOTICES.

CHRISTMAS PRESENTS.

We want to whisper in the ear of Santa Claus that, when you are filling your sled with good things for the little boys and girls for Christmas, so near at hand, you will do well to look carefully through our premium list sent to you a month ago, and see if you don't find something there that you will want to put into the sled. If you send us an order we are prepared to put the things on to the first train, and thus do our part to get them to you on time. If you have mislaid the list, we have plenty more to send you if you will just let us know on a postal.

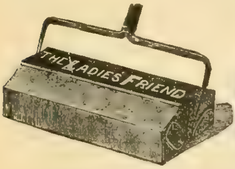
THE WORLD TYPE-WRITER, WITH GLEANINGS ONE YEAR, FOR $8.00, TILL JAN. 1, ONLY.

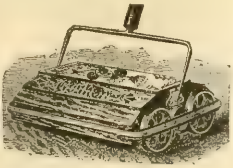
Our readers will do well to remember that our offer, made in premium list Nov. 15, of a World typewriter for $7.50 here, or prepaid for $8.00, or sent with GLEANINGS one year for $8.00, receiver paying charges, ends Jan. 1st. There are only two more weeks in which to take advantage of this offer, and we would advise you to send at once before our supply of machines is exhausted. After Jan. 1st the price will be $10.00 for a machine delivered, or $10.00 with GLEANINGS one year, receiver paying charges.

THE NEW WATERBURY WATCH.

We have for many years been selling the Waterbury watch, which you will find pictured and described on the last page of our price list. We have disposed of over 25 gross of them, and they are truly a marvel for the price, the last series, "E," being well nigh perfection. One of the objections raised against it was that it took so long to wind it. Well, the Waterbury Watch Co. have been at work for a year or more on a new watch, and have just got it ready for the public. This watch is called series "J." It is short wind, like an ordinary watch, stem wind and set, second-hand, expansion balance, jeweled, and in nickel case, and the price is only $4.00. By mail, registered, 15 cts. extra. I have been carrying one now over a month, and find it is an excellent timer. We still furnish the series "E" at $2.50. By mail, registered, $2.65.

SOMETHING FOR THE MEN TO READ, AND LADIES TO PASS BY.





Christmas is almost here; and if you are a good and true husband you are no doubt looking for some pleasant surprise for your good wife. Of course, you want something that will please her most, and at the same time be useful in the home. Well, if she hasn't a carpet-sweeper, let me tell you that there is nothing you can possibly get that will be so much of a help, or that will be more highly prized than a good carpet-sweeper. If she has never used one she may not value it so highly at first; but you may rest assured that there is nothing more certain than that she will continue to prize it more highly if it is a good practical sweeper, and will never again be without one. The two sweepers shown above we have been selling till within 30 days at $2.00 and $3.00, and in many places you will find the same or similar sweeper selling for $2.50 and $3.50. We have bought over 300 of these sweepers, and are going to sell them, while they last, at $1.50 for the Ladies' Friend, and $2.00 for the Goshen. You can not do better than to get one to give to your helpmeet on Xmas.

DADANT'S FOUNDATION FACTORY, WHOLESALE AND RETAIL. See advertisement in another column. 3btfd

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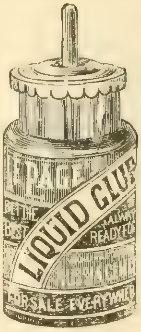


LEPAGE'S LIQUID GLUE.

Few words of praise are necessary for this excellent article, so widely known and advertised. It is one of the best of liquid glues. Always ready for use. Mends every thing. We have 4 different-sized packages.

Glass bottle like the adjoining cut for 10 cts.; 75 cts. for 10; $7.00 per 100. Half-gill tin cans with screw cap, and brush fastened to inside of cap, price 15 cts. each; $1.10 for 10; $10.50 per 100. This latter can be sent by mail for 10c. extra for postage and packing.

Gill tin can with brush, 20 cts.; 10 for $1.50; 100 for $14.00; ½-pint tin cans, no brush, 25 cts.; $2.20 for 10; $21.00 per 100.

LePage's MUCILAGE, in large bottles, with a nice enamel-handle brush, at 10 cts. each; 75 cts. for 10; $7.00 per 100. This is the best mucilage made, and will do nicely in many cases for glue, although it is pretty thin to be used as glue.

A. I. ROOT, Medina, O.

Cash for Beeswax!

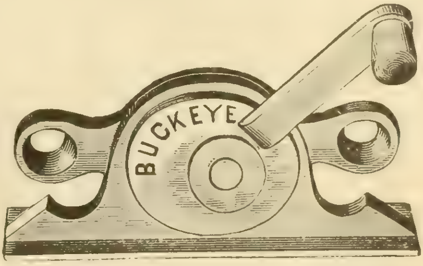
Will pay 20c per lb. cash, or 23c in trade for any quantity of good, fair, average beeswax, delivered at our R. R. station. The same will be sold to those who wish to purchase, at 27c per lb., or 30c for *best selected wax.*

Unless you put your name *on the box*, and notify us by mail of amount sent, I can not hold myself responsible for mistakes. It will not pay as a general thing to send wax by *express.*

A. I. ROOT, Medina, Ohio.

BUCKEYE SASH-LOCK.

A Device to Fasten Windows Up or Down, At Any Point.



For many years I have been trying to get something better to hold a window up than a stick or book, or something of that sort; but although we have tried them, even paying as high as 75 cts. per window, I have never had any thing please me so well as the one here shown. This device holds the sash securely by friction in any desired position, as tight as if it were in a vise. It prevents the sash from rattling, and excludes the dust by making tight joints, and yet it does not mar the wood. It is put on with two screws, and can be fitted by an inexperienced hand in three minutes. It works equally well on upper or lower sash, with or without weights. Printed instructions are furnished with each one, as well as screws to fasten them on with, and yet the price is only 5 cts.; ½doz. for 50 cts.; 100 for $4.00. If wanted by mail, add 3 cts. each extra. The above are japanned.

A. I. ROOT, Medina, Ohio.

1350 Cash Premiums.

Address Box 436, Skaneateles, N. Y.

This advertisement refers to all newspapers in the United States. We ask you to address box, so as to test GLEANINGS as an advertising medium.

☞In responding to this advertisement mention GLEANINGS.

NEARLY THIRTY TONS
—OF—
DADANT'S FOUNDATION
SOLD IN 1887.

It is kept for sale by Messrs. T. G. Newman & Son, Chicago, Ill.; C. F. Muth, Cincinnati, O.; Jas. Heddon, Dowagiac, Mich.; F. L. Dougherty, Indianapolis, Ind.; B. J. Miller & Co., Nappanee, Ind.; E. S. Armstrong, Jerseyville, Ill.; E. Kretchmer, Coburg, Iowa; P. L. Viallon, Bayou Goula, La., M. J. Dickason, Hiawatha, Kansas; J. W. Porter, Charlottesville, Albemarle Co., Va.; E. R. Newcomb, Pleasant Valley, Dutchess Co., N. Y.; D. A. Fuller, Cherry Valley, Ill.; J. B. Mason & Sons, Mechanic Falls, Maine; G. L. Tinker, New Philadelphia, O., Jos. Nysewander, Des Moines, Ia.; C. H. Green, Waukesha, Wis.; G. B. Lewis & Co., Watertown, Wisconsin; J. Mattoon, Atwater, Ohio, Oliver Foster, Mt. Vernon, Iowa; C. Hertel, Freeburg, Illinois; Geo. E. Hilton, Fremont, Mich.; J. M. Clark & Co., 1409 15th St., Denver, Colo.; Goodell & Woodworth Mfg. Co., Rock Falls, Ill.; J. A. Roberts, Edgar, Neb., E. L. Goold & Co., Brantford, Ontario, Canada; J. N. Heater, Columbus, Neb., and numerous other dealers.

Write for *free* samples, and price list of bee supplies. We *guarantee every inch* of our foundation *equal to sample in every respect*. Every one who buys it is pleased with it.

CHAS. DADANT & SON,
3btfd **Hamilton, Hancock Co., Illinois.**

☞In responding to this advertisement mention GLEANINGS.

APIARIAN SUPPLIES CHEAP.

BASSWOOD V-GROOVE SECTIONS, $2.75 to $3.75 PER M. SHIPPING-CASES VERY LOW.

SEND FOR PRICES.

GOODELL & WOODWORTH MFG. CO.,
3tfdb **ROCK FALLS, ILLINOIS.**

☞In responding to this advertisement mention GLEANINGS.

Costs less than 2 cents per week.

THE CANADIAN BEE JOURNAL.

THE FIRST DOLLAR WEEKLY IN THE WORLD.

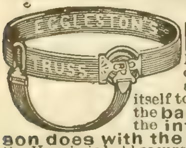
THE D. A. JONES CO., PUBLISHERS, BEETON, ONTARIO, CAN.

D. A. Jones is its editor, and this fact is a guarantee of its worth. It is thoroughly practical and contains weekly excellent articles from leading bee-keepers in the United States and Canada. Fifty-two numbers make a volume of 1040 pages. American currency and stamps at par. Samples free.

☞In responding to this advertisement mention GLEANINGS.

FREE to all, A WHITE-GRAPE VINE.
Send 10 cents for postage, etc.
POINT BREEZE GRAPERY, Reading, Pa.,

ON 30 DAYS' TRIAL.



THIS NEW
ELASTIC TRUSS

Has a Pad different from all others, is cup shape, with Self-adjusting Ball in center, adapts itself to all positions of the body, while the **ball** in the cup **presses back the intestines just as a person does with the finger.** With light pressure the Hernia is held securely day and night, and a radical cure certain. It is easy, durable and cheap. Sent by mail Circulars free. **EGGLESTON TRUSS CO., Chicago, Ill.**

☞In responding to this advertisement mention GLEANINGS.

MOISTURE.

If you would know the effects of moisture in bee-cellars, how injury to the bees from its presence may be avoided, or how to have dry cellars, read the Nov. No. of the **Bee-Keepers' Review.** It gives, upon these points, the views and experience of Jas. Heddon, H. R. Boardman, Dr. C. C. Miller, J. H. Martin, Eugene Secor, O. O. Poppleton, Prof. A. J. Cook, R. L. Taylor, and S. Corneil. Besides this, there are the usual lively, wideawake, pointed editorials upon current topics, also appropriate extracts pertaining to the special topics under discussion. The Dec. No. will discuss "Sections and their Adjustment on the Hives."

Price of the REVIEW, 50 cents a year. Samples free. Back numbers can be furnished.

The REVIEW and "The Production of Comb Honey," for 65 cts. Address

W. Z. HUTCHINSON,
613 Wood St. **Flint, Mich.**

☞In responding to this advertisement mention GLEANINGS.

MUTH'S
HONEY-EXTRACTOR,

SQUARE GLASS HONEY-JARS,
TIN BUCKETS, BEE-HIVES,
HONEY-SECTIONS, &c., &c.
PERFECTION COLD-BLAST SMOKERS.

Apply to CHAS. F. MUTH & SON,
CINCINNATI, O.

P. S.—Send 10-cent stamp for "Practical Hints to Bee-Keepers." (*Mention Gleanings.*) 1tfdb

Merrybanks and His Neighbor.

BY A. I. ROOT.

This is the title of a little book of 210 pages and 68 illustrations. It narrates the alternate failure and success of a beginner who ultimately, through much tribulation, becomes a successful bee-man and a power for good in Onionville. Appropriate original cuts, many of them humorous, are interspersed here and there, representing some of the droll experiences which a beginner with bees sometimes passes through. Besides bees, it talks of other rural pursuits, such as gardening, maple-sugar making, etc. It has a good deal to say about our homes, and more particularly one home which was started upon a sandy foundation, but eventually became builded upon the rock Christ Jesus. The book is full of instruction. Price 25 cts.; 3 cts. extra when sent by mail.

A. I. ROOT, Medina, Ohio.

Maple Sugar and The Sugar-Bush

THIS IS A NEW BOOK BY

PROF. A. J. COOK,

AUTHOR OF THE

BEE-KEEPER'S GUIDE, INJURIOUS INSECTS OF MICHIGAN, ETC.

The name of the author is enough of itself to recommend any book to almost any people; but this one on Maple Sugar is written in Prof. Cook's happiest style. It is

PROFUSELY ✦ ILLUSTRATED,

And all the difficult points in regard to making the very best quality of Maple Syrup and Maple Sugar are very fully explained. All recent inventions in apparatus, and methods of making this delicious product of the farm, are fully described.

PRICE: 35 Cts.; by Mail, 38 Cts.

A. I. ROOT, Medina, O.

Wants or Exchange Department.

Notices will be inserted under this head at one-half our usual rates. All ad's intended for this department must not exceed 5 lines, and you must SAY you want your ad. in this department, or we will not be responsible for any error. You can have the notice as many lines as you please; but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale can not be inserted under this head. For such our regular rates of 20 cts. a line will be charged, and they will be put with the regular advertisements.

DO you wish to exchange extracted honey for supplies? If so, write at once to
5tfdb CHAS. H. SMITH, Pittsfield, Mass.

WANTED.—To exchange 250 colonies of bees, for horses, mules, wagons, buggies, and 4 h. p. engine, or any thing useful on a plantation.
21tfd ANTHONY OPP, Helena, Phillips Co., Ark.

WANTED.—To correspond with parties having hickory-nuts, pecans, honey, etc.
EARLE CLICKENGER, No. 119 South Fourth St.,
23 24d Fruit and Produce. Columbus, O.

WANTED.—To exchange for extracted honey, a 10 h. p. horizontal engine, worth $200. I will give somebody a rare bargain. Speak quick.
15tfdb C. H. SMITH, Pittsfield, Mass.

WANTED.—To exchange one section machine (of A. I. Root's make), which has been in use but little, for bees, honey, or bee supplies. 24tfdb
E. Y. PERKINS, Jefferson, Greene Co., Iowa.

WANTED.—One trio Brown Leghorn Rose-comb chickens, and one trio White Leghorn Rose-comb chickens. PETER METZ, Poplar Grove, Ark.

DADANT'S FOUNDATION FACTORY, WHOLESALE and RETAIL. See advertisement in another column.

THE WINTER CARE OF
HORSES and CATTLE.
THE MOST HUMANE AND
PROFITABLE TREATMENT.
BY T. B. TERRY.

Although the book is mainly in regard to the winter care of horses and cattle, it touches on almost every thing connected with successful farming—

SHELTER, COMFORT, FEEDING, EXERCISE, KINDNESS, DIFFERENT SORTS OF FEED, A FULL TREATISE ON THE MOST ECONOMICAL WAY OF SAVING MANURE.

A full description of Terry's model barn is also given.

PRICE: 40 Cts.; by Mail, 43 Cts.

A. I. ROOT, Medina, O.

WHAT TO DO,
—AND—
How to Be Happy While Doing It.

The above book, by A. I. Root, is a compilation of papers published in GLEANINGS in 1886, '7, and 8. It is intended to solve the problem of finding occupation for those scattered over our land, out of employment. The suggestions are principally about finding employment around your own homes. The book is mainly upon market-gardening, fruit culture, poultry-raising, etc. I think the book will be well worth the price, not only to those out of employment, but to any one who loves home and rural industries. Price in paper covers, 50 cts.; cloth, 75 cts. If wanted by mail, add 8 and 10c respectively.

A. I. ROOT, Medina, Ohio.

BEE-HIVES, SECTIONS, ETC.

WE make the best bee-hives, shipping-crates, sections, etc., in the world, and sell them cheapest. We are offering our choicest white one-piece 4¼x4¼ sections, in lots of 500, at $3.50 per 1000.
☞ Parties wanting 3000 or more, write for special prcies. No. 2 sections, $2.00 per 1000. Catalogues free, but sent only when ordered.

C. B. LEWIS & CO.,
Mention Gleanings. **Watertown, Wis.**

GOODSPEED'S
Newspaper Subscription Agency.
THORN HILL, N. Y.

Save money by ordering your papers of us. Four times as large as any other list that circulates among subscribers. Big inducements to club-raisers. Illustrated catalogue for 1889 ready. 24-1d
☞ In responding to this advertisement mention GLEANINGS.

1889
NEW CATALOGUE
MAILED IN DECEMBER.

Enlarged, and prices reduced. It quotes LOW SPECIAL FREIGHT RATES to many Southern points, especially to points in *TEXAS*.
Southern bee-keepers, send for it NOW.
23-24 **J. M. JENKINS, Wetumpka, Ala.**
☞ In responding to this advertisement mention GLEANINGS.

FREE! Bee-Keepers' Club List of Newspapers and Magazines (Club rates). **SAVE MONEY** by sending postal card for it.
23-24d E. H. COOK, Andover, Conn.

DADANT'S FOUNDATION FACTORY, WHOLESALE AND RETAIL. See advertisement in another column

B. J. MILLER & CO.,
NAPPANEE, - ELKHART CO., - IND.,
MANUFACTURERS OF
BEE-HIVES AND SUPPLIES.

We give 10 per cent discount on bee-hives and sections in November and December. 22tfdb
SEND FOR PRICE LIST.
☞ In responding to this advertisement mention GLEANINGS.

GREAT REDUCTION IN LEAD-PENCILS.

The bottom has fallen out of the combination on lead-pencils, so that we can sell the same pencils at just ½ the price we have sold them.

6-inch Plain Cedar Pencils. 5 cents per dozen. Postage, 3 cents extra;, 55 cents per box of 12 dozen. By mail, 21 cents extra. These are the same that we have been selling for years at 10 cents per dozen. Eagle Pencil Co.'s make.

Plain Cedar Pencils. 7¾ inches long, Dixon's make. Price 7 cents per dozen; 75 cents for 12 dozen. By mail, 3 cents per dozen extra, or 32 cents per gross for postage.

Polished Cedar Pencils, with inserted **Rubber Tip.** Price 10 cents per dozen. Postage 4 cents extra; $1.10 for 12 dozen; postage 35 cents extra. These are Eagle Pencil Co.'s make. We have been selling them for 3 cents each; 20 cents per dozen, but are now able to offer them as above.

PATENTED
CLASPERASER

Pilot Pencils. These are finely polished, and as good pencils as are made. We have 2 sizes—$\frac{9}{32}$ inch and $\frac{7}{32}$ inch in diameter. Price 3 cts. each; postage, extra, 2 cts. Thirty cents per dozen; by mail, 5 cts. extra

A. I. ROOT, Medina, Ohio.

HONEY COLUMN.

CITY MARKETS.

ALBANY.—*Honey.*—Market is unchanged. Stocks fair, and prices steady; could use more white extracted than am receiving, to good advantage.
Dec. 12. H. R. WRIGHT,
Albany, N. Y.

DETROIT.—*Honey.*—Best white comb in one-pound sections, 16@18c. Supply not large, but equal to the demand. *Beeswax*, 22@23. M. H. HUNT.
Bell Branch, Dec. 12, 1888.

CHICAGO.—*Honey.*—Honey is selling quite well. One-pound sections range from 15@18, according to color, style, etc. A little fancy has sold up to 20. Dark comb works off slowly at 13@15. Extracted, without special change. White ranges about eight cents in barrels, and extracted honey, as a class, 6@9. R. A. BURNETT,
Dec. 12. 161 So. Water St., Chicago, Ill.

NEW YORK.—*Honey.*—Business is quiet as usual around the holidays, and only nominal prices can be given. We quote: Fancy 1-lbs., 15@17. Fair 1-lbs., 13. Fancy 2-lbs., 13@14. Fair 2-lbs., 11-12. Buckwheat 1-lbs., 11@12; same, 2-lbs., 10-11. Extracted, unchanged. F. G. STROHMEYER & CO.,
Dec. 11. New York.

BOSTON.—*Honey.*—No change in prices. Sales are good and from present indications all the honey in the country will be sold by Feb. 1.
Dec. 12. BLAKE & RIPLEY,
Boston, Mass.

COLUMBUS.—*Honey.*—Honey market dull—no change in prices since my last.
Dec. 11. EARLE CLICKENGER,
Columbus, Ohio.

ST. LOUIS.—*Honey.*—Comb, 14@16; strained and extracted, 5½@6; if in cans, 7½@8. Strained, in barrels, scarce, and would command ready sale.
Dec. 12. D. G. TUTT GROCER CO.,
St. Louis, Mo.

CINCINNATI.—*Honey.*—There is in our market a good supply of honey of all kinds but Northern clover. Trade is dull. Extra'd honey brings 5@8 on arrival. Comb honey sells at 12½@16 in the jobbing way. *Beeswax* is in good demand, and brings 20@22 on arrival for good to choice yellow.
Dec. 13. CHAS F. MUTH & SON,
Cincinnati, Ohio.

KANSAS CITY.—*Honey.*—Honey moving slow. We quote, white 1-lb. comb, 16@17; fall 1-lb. comb, 14@15; California white 2-lb., 14@15; amber, do., 2-lb., 12@13; extra white, do., 7½; extra amber, do., 7. *Beeswax*, none in market. CLEMONS, CLOON & CO.,
Dec. 11. Kansas City, Mo.

ST. LOUIS.—*Honey.*—The receipts of honey have been very light for the month, with good demand, and little better prices for extracted in bbls., which is now bringing 6@6½; choice stocks, dark, 5@5½ in cans; demand light at any thing above. Barrels, choice white clover, comb, 1-lb., single-tier cases, 14@15 cts. *Beeswax*, steady.
Dec. 12. W. B. WESTCOTT & CO.,
St. Louis, Mo.

CONVENTION NOTICES.

The Nebraska State Bee-Keepers' Association will convene at Lincoln, Jan. 9, 10, and 11, 1889. J. N. HEATER, Sec.

The annual meeting of the Ontario Bee-Keepers' Association will be held in Owen Sound on the 8th and 9th of January, 1889.
W. COUSE, Sec'y.

The annual meeting of the Vermont State Bee keepers' Association will be held in the Court-house, at Middlebury, Tuesday, Jan. 15, 1889. MARCIA A. DOUGLAS, Sec., Shoreham, Vt.

For Sale. **WYANDOTTE COCKERELS,** also a few breeding-pens and trios, at a reasonable price. Stock extra good. Address
24-1-2d J. W. GRISWOLD, Rose, Wayne Co., N. Y.

NUMBER ONE OF THE

QUEEN - BREEDER'S JOURNAL

Is now ready. Send your name on a postal, and receive a free sample copy of this bright new journal. Only 50 cts. per year. Address the
Q. B. JOURNAL, Marlboro, Mass.
E. L. PRATT, publisher. 24d

1859. *1889.*

LANGSTROTH REVISED.

THE PROGRESS OF 30 YEARS.

This book will be out during the holidays. It makes an entirely new work; and all who have read the former editions want this revision.

550 PAGES. SIXTEEN PLATES. PORTRAITS OF THE WORLD'S LEADING BEE-WRITERS.

NUMEROUS NEW ENGRAVINGS.

Nearly five hundred copies of this book have been ordered before the first copy is out of the binder's hands.

PRICE $2.00. DISCOUNT ON QUANTITIES.

CHAS. DADANT & SON,

HAMILTON, HANCOCK CO., ILLINOIS.

☞In responding to this advertisement mention GLEANINGS.

BEES, Queens, Hives, Given Comb Foundation, Apiarian Supplies, German Carp, Small-fruit Plants. Send for catalogue free. E. T. Flanagan, Belleville, Ill's.
1-24db

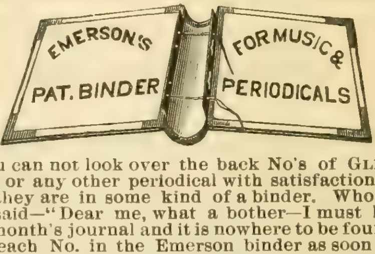
WYANDOTTES.

I will sell choice pure-bred cockerels now at $2.00 each. W. K. LEWIS, Dry Ridge, Ky. 24tfdb

ABC OF POULTRY-RAISING.

Price 15 cts. Send name on postal card for prices of low-down brooders. Address
24d J. O. KAPP, Poe, Medina Co., Ohio.

DADANT'S FOUNDATION FACTORY, WHOLESALE and RETAIL. See advertisement in another column. 3tfbd



You can not look over the back No's of GLEANINGS, or any other periodical with satisfaction, unless they are in some kind of a binder. Who has not said—"Dear me, what a bother—I must have last month's journal and it is nowhere to be found?" Put each No. in the Emerson binder as soon as it comes, and you can sit down happy, any time you wish to find anything you may have previously seen, even though it were months ago.

Binders for GLEANINGS (will hold them for one year) gilt lettered, for 60 cts.; by mail, 12 cts. extra. Ten, $5.00; 100, $45.00. Table of prices of binders for any periodical, mailed on application. Send in your orders. A. I. ROOT, Medina, Ohio.

GLEANINGS IN BEE CULTURE.

DEVOTED TO BEES, HONEY & HOME INTERESTS.

Vol. XVI. **DECEMBER 15, 1888.** **No. 24.**

TERMS: $1.00 PER ANNUM, IN ADVANCE; 2 Copies for $1.90; 3 for $2.75; 5 for $4.00; 10 or more, 75 cts. each. Single number, 5 cts. Additions to clubs may be made at club rates. Above are all to be sent to ONE POSTOFFICE.

Established in 1873.
PUBLISHED SEMI-MONTHLY BY
A. I. ROOT, MEDINA, OHIO.

Clubs to different postoffices, NOT LESS than 90 cts. each. Sent postpaid, in the U. S. and Canadas. To all other countries of the Universal Postal Union, 18 cts. per year extra. To all countries NOT of the U. P. U., 42 cts. per year extra.

QUEENS GOING BACK TO OLD HIVES.

HARD MAPLES; HONEY IN BROOD-NEST, ETC.

ON page 530 of GLEANINGS for July, 1888, S. C. Perry tells us about a queen just hatched going back to the hive from which she was taken some two hours before, and killing the queen which he left there. In the foot-notes at the end of this item by friend P., the editor seems to think that P. has made a mistake, and that the queen he found there was a third queen. Now, I have every reason to believe that friend P. was perfectly correct in his conclusions, for I have had several queens just hatched return to the parent hive in just the way this one did, so I know what I affirm. In the first place, the incident spoken of by friend P. is one of those cases where the queen was kept back in the cell, being fed in the cell till she was strong enough to fly, so of course could fly as well as any of the bees; otherwise she could not get back, for, as I have said before in these columns, no queen ever flies as soon as she is ready to hatch, doing so only when held in the cell by the bees for some little length of time after she is mature. "But," says one, "how did the queen get back, even if she could fly?" There was nothing to hinder her doing this, any more than there is to hinder all of the young bees, that can fly, returning to the parent hive, as they always will when making nuclei by taking frames of brood from colonies having a laying queen, as nearly every bee-keeper experiences sooner or later who tries to make nuclei in this way, without shutting up the bees for 24 hours or longer. In such making of nuclei, probably half of the bees taken have never flown; yet all that can possibly fly go back to where they were taken from, although never having seen the outside of the hive before. How is it done? Why, they simply follow those back which know the way. In case of the pig spoken of by the editor, it would have been easy to account for its getting back home had an older brother or sister been taken along with it, who had traveled over the road several times before, as was done in the case of this queen spoken of. In my many experiments in making nuclei I have had young queens and bees return many times, where any older bees went with them; but where making them by the caged-frame-of-brood plan, when no other bees went with them except those hatched inside the cage, I never knew of a single bee returning, no matter how old they were when let loose from the cage, although while changing them from the cage to the hive I have had nearly every one of the bees and the queen take wing.

HONEY FROM HARD MAPLES.

On page 563, of July 15th GLEANINGS, Mrs. Chaddock gives just my experience about bees working on hard maples. If bees ever get any honey to store in their honey-sacs, I have never been able to find it, and I have looked and studied along this line of honey-producing more closely than along any other line. We are told nearly every year of bees getting honey from the hard maples, and I had hoped that my turn to find bees so getting honey would come next; but after killing several bees each year during many years, while at work on the hard maple, and always finding their honey-sac empty, I have come to the conclusion that there was a mistake somewhere. Willow, of several kinds, blossoms just when the maples do, and bees caught on the willows showed their sacs well filled with honey in nearly every instance. These honey-laden bees were found going into the hive with those having pollen from the maple; and as the maples were roaring with bees all of the time, while scarce a hum was heard in the willows, it would be very easy to suppose that the honey came from the maples, had I not tested the matter so thoroughly. It is well known by all close observers, that, when there is much noise made near and about any plant or tree, by the bees, they are not getting much honey; for when there is a profuse honey-yield the bees are not on the wing much, but, on the contrary, are standing still on the flowers, sucking up the honey. Pass under a tree where the bees are getting pollen, and you will hear a continuous roar, for the reason that the bee is on the wing much of the time while packing the pollen on its legs. I have only to pass under a tree on which the bees are at work, to tell whether that tree is yielding much honey or not.

HONEY IN THE BROOD-NEST, INSTEAD OF IN SECTIONS.

By turning to page 585 of the same number of GLEANINGS, and reading the first paragraph under "Our Own Apiary," the reader will notice what condition the bees were in at the "Home of the Honey-Bees," at the time of year when I always endeavor to have every available cell in my hives filled with brood. No hive ought to be in the condition there described during the fore part of the honey-harvest; and if it is allowable to get so, it will give the same results nearly every time that the bees will not go into the sections, the same as we are told that they did not. Even if the season is poor, the first honey should go into the sections, if the bees do not store more than three or four pounds during the season. The brood-chamber to no hive should be larger at that time of the year than is actually required to hold the brood; for all bees, especially the Italians, are prone to store honey in the brood-chamber in preference to the sections, if the queen does not have it occupied with brood when the honey season commences; and if they have room to store thirty or forty pounds in the brood-chamber they will very likely not go into the boxes at all. I have often noticed, that, if the bees start to storing in the brood-chamber to any great extent before entering the sections, such colonies will be unprofitable as far as section honey is concerned. For this reason I take away all combs, not occupied with brood, from the colony I am to put sections upon. Dummies or division-boards are used to take the place of the broodless combs taken away; and thus when the bees get to storing surplus honey it must go into the sections, as they have nowhere else to put it.

G. M. DOOLITTLE.

Borodino, N. Y., Dec. 1, 1888.

Your explanation as to how a young queen may find her old home, under circumstances related by S. C. Perry, seems very reasonable; and in the absence of a better one, we are ready to accept it. In your reference to the statement in Our Own Apiary, you seem to forget the difference in locality. You say, "No hive ought to be in the condition there described, during the *fore part* of the honey harvest." The italics are ours. Our main honey-flow, beginning *about* June 15, tapers off *about* the 15th of July. Your honey-flow commences, if we are correct, later, but just how much later we do not remember. When we said, on page 585, that "the brood-nests of our colonies were about two-thirds full," we meant *honey*, not *brood*. Perhaps we did not make this clear; but if you will follow the context a little further we think you will see that this was our meaning. At the beginning of our harvest, or, rather, just before, every colony had almost every frame filled with brood (see page 407). With the L. frame we rarely have every available cell filled. Two-thirds of the space is occupied with brood; and the rest, a border next to the top, is filled with honey, if there is any. But in the case in point, only two-thirds of this border space was filled with *honey*, not brood.

A. I. ROOT.

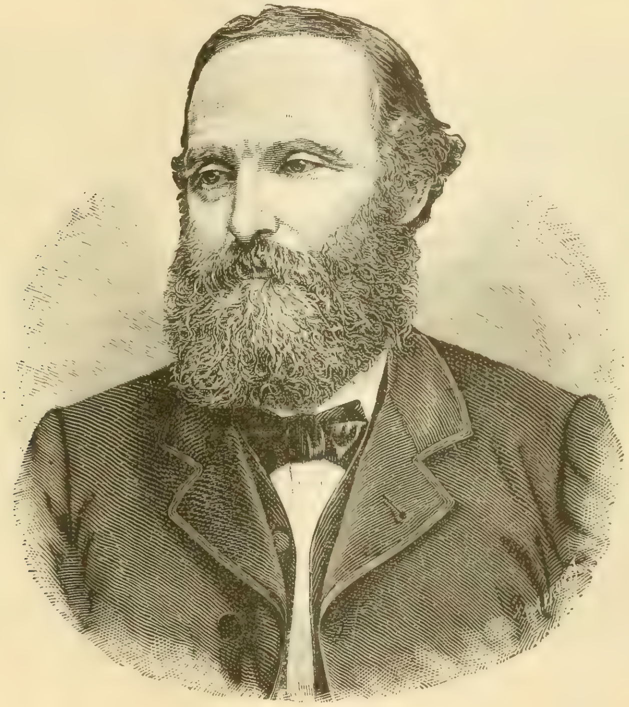
HIS BOYHOOD, AND SOME OF HIS EARLY HOBBIES.

A FEW days ago we received a letter from Chas. Dadant, saying that he had sent an electrotype of a portrait engraving of A. I. Root, from his new book now about completed. He also suggested the propriety of inserting the same in the next issue of GLEANINGS, by way of a pleasant surprise to the personage represented, on his return from his Western tour.

A few years ago, when the revision of Langstroth's book was in progress, at the request of the revisers a photo was sent; this was then placed in the hands of a German, one of the finest wood-engravers in the world. Although I do not consider the reproduction as natural as an Ives would have been, yet for a wood-cut the likeness is quite faithful to the photograph, which was taken some six or seven years ago. Since this time some of the marks of advancing years have begun to manifest themselves upon his face and hair.

A. I. Root was born in a log house about two miles north of his present business plant. He was a very frail child, and his father had little hopes of raising him, although the neighbors assured him that his wife would not let him die. As he grew older his taste for mechanics and gardening became apparent. Among his early hobbies were poultry, windmills, clocks, electricity, chemistry, etc. He did not take kindly to feeding pigs, or, for that matter, general farmwork, although he took particular delight in gardening. One of the jobs which he disliked was churning. Accordingly, to appease his mechanical turn of mind, and at the same time relieve himself if an irksome task, he constructed a windmill. This was attached to the churn, and the latter, in obedience to the wind, soon converted the cream into butter. At the early age of 18 he became so enthusiastic on the subject of chemistry and electricity that he started out on a lecturing-tour with a fully equipped apparatus of his own construction. Such an undertaking on the part of a mere boy was rather unusual, but he was not one of the kind who followed in the wake of most other boys—indeed, he was even called peculiar. In spite of difficulties and in spite of discouragements, he *electrified* his audiences, who sometimes complimented him, and at other times were disposed to make fun when his experiments did not turn out just as he told them they would. About this time he engaged the services of one Samuel Bates, who acted as an assistant, door-tender, etc. In one of their journeys from one town to another it became necessary for them, as they thought, to ford a stream. Young Root declared that the water was too deep, and insisted upon unloading the apparatus from the wagon, which he did. Bates declared that it was perfectly safe, and accordingly the two, with the horse, began to ford the stream. They very soon got beyond their depth, and the horse, impeded by the wagon, sank; and Bates, not being able to swim, went down likewise. Amos, who had acquired the art, swam for the shore till he could swim no longer. With presence of mind he sank down and crawled toward the bank until out of the water. Having first emptied the water from his lungs he called for help, and then pushed a rail out to a point where the receding ripple showed his friend had just gone down, never to return alive. This was not the first instance in which Mr. Root saved his life by swimming. The second time was from the waters of the Ohio River.

While these tours among the people in the interest of science did not enrich him pecuniarily, it gave him an insight into human nature which doubtless has been of great value to him in his subsequent life. Nor was this the only course in the study of human nature in his early experience. It so happened that there was a country school (one of the pioneer style), which no teacher had been able to teach through a whole term. The big boys had boasted that they could "lick and put out any teacher" the directors might send, and heretofore they were successful in carrying out the fullest intent of their boasts. The last teacher, a college graduate, after being forcibly ejected from the building, cried because the boys wouldn't let him in again. When a young man of slight figure in the person of A. I. Root, applied for this school, the directors accepted him. I can assign no reason for such acceptance, in the light of former experience, unless it was the wiry appearance and the determined face of the new applicant. Every thing went well for a time in the school; but finally one or more of the big boys contrived to create a disturbance. The result was, the new teacher was overpowered by one of the brute forces. The latter called out, "Come on, boys, let's put him out." A. I. Root has a terrible temper when aroused. Now furious, with an almost superhuman effort he flung his burly opponent over, and, before he could recover himself, placed his foot upon his throat and demanded of him to lie still or suffer the consequences. Young Root then asked the other boys if they were ready to obey. Or-



AMOS IVES ROOT.

der was restored, and the burly fellow afterward became one of his best pupils. Besides this, the teacher received the praise of the directors.

The next hobby of A. I. Root was clock work and jewelry. Having learned the trade he decided to go into business. Accordingly he went to a friend and asked him if he would loan him a sum of money for a certain length of time. This friend gave him some advice which he has been glad of ever since. It was this: He would loan him the money if he wished, but he would advise him to *work* his way up into business. Unlike most boys, the embryo business man accepted the latter, and his success in business life proves the wisdom of the advice. Shortly after engaging in the jewelry business he was married (in 1861) to Miss Susan Hall. Imbued with a natural love for his work, and endowed with almost ceaseless energy and push, his business began to prosper. Ere long in the providences of time, a new rootlet sprang forth, of which I am told the parent branch was exceedingly proud. That was in 1862, and the boy, now a man grown, sometimes signs himself Ernest. The business continued to prosper until A. I. Root & Co. were among the largest manufacturing jewelers in the country. From 200 to 500 dollars in coin were weekly made into chains and rings. The firm employed something over a dozen men and girls in the manufacture of gold and silver rings, chains, etc. In 1865 his daughter Maude, now Mrs. J. T. Calvert, was born into the family. It was about this time that the first swarm passed over his jewelry establishment. As this, together with his other bee-keeping experience, is fully given in the Introduction to the A B C, I omit it.

About this time he began to write for the *American Bee Journal*, under the very suggestive and appropriate *nom de plume* of "Novice." In these papers, as some of the old veterans will remember, he recounted some of his failures and some of his successes with bees. The articles seemed to take well, and, in the due course of time, so many inquiries came in that he resolved to start a quarterly bee-journal, entitled GLEANINGS IN BEE CULTURE. No sooner was the first issue put forth than he determined to make his little journal a monthly. Very soon after, the manufacture of bee-keepers' supplies was begun in connection with the jewelery business. With the windmill as a motive power, and a buzz-saw, "Novice," with the occasional assistance of the writer, made Simplicity hives. Sometimes the wind wouldn't blow and orders had to wait. I well remember on several occasions of getting up in the night when a breeze started up, to "help pa" saw the boards. I holding one end while he managed the other. As orders began to come it was thought a foot-power buzz-saw would do what the wind would not. A Barnes was ordered, and wind and foot power were made to answer for a while. To make a long story short, the supply-business continued to grow at such a rate that a little engine was ordered. This likewise was inadequate, and finally it was found necessary to engage a night force and run night and day. Things continued thus for a couple of seasons, when the jewelry business and the building "up town" was sold (1877), and in its stead another larger was erected near the depot. This is shown on the first page of the A B C of Bee Culture. As the subsequent growth of his business is already given fully in the Introduction of the work just mentioned, I omit it here also.

In business matters he is prompt and decisive. Goods by return train, and correspondence by return mail, is his constant aim, although at times such promptness has been physically impossible, for reasons I will not mention. An array of complications often arises in business, but his decision is always prompt and final. With remarkable celerity he will grasp an idea or the gist of an article. The rapidity with which he will transmit his thoughts on paper is no less remarkable. He will usually dictate four pages of solid printed matter (like this, for instance), in little over an hour, and that, too, through interruptions which he permits of clerks plying him with business questions. While he is attending to his other business the stenographer transcribes his thoughts with a type-writer. Sometimes I think more deliberation in dictating might be to his advantage; but he hasn't the time nor strength.

His activity is almost ceaseless, and his energy often goes beyond the proper limits of strength. He rises early in the morning, and from that time on till bedtime he is "constantly on the go." I have often desired to see him sit on a hitching-post and "take it a little easy just for two minutes," but he never has accorded me the pleasure, and it is not at all likely he ever will. He says he would "rather wear out than rust out;" but if the good Lord wills, he will do neither just yet.

To rest, in the sense of inactivity, is out of the question. That this constant activity, and the wear and worry of a large wholesale and retail business, has necessitated rest, his ill health plainly shows. Young blood, in the personages of J. T. Calvert, Mr. J. S. Warner, your humble servant, and others, has, within the last three or four years, very materially lightened his labors; and for the past five weeks, during his absence they have assumed the entire responsibility.

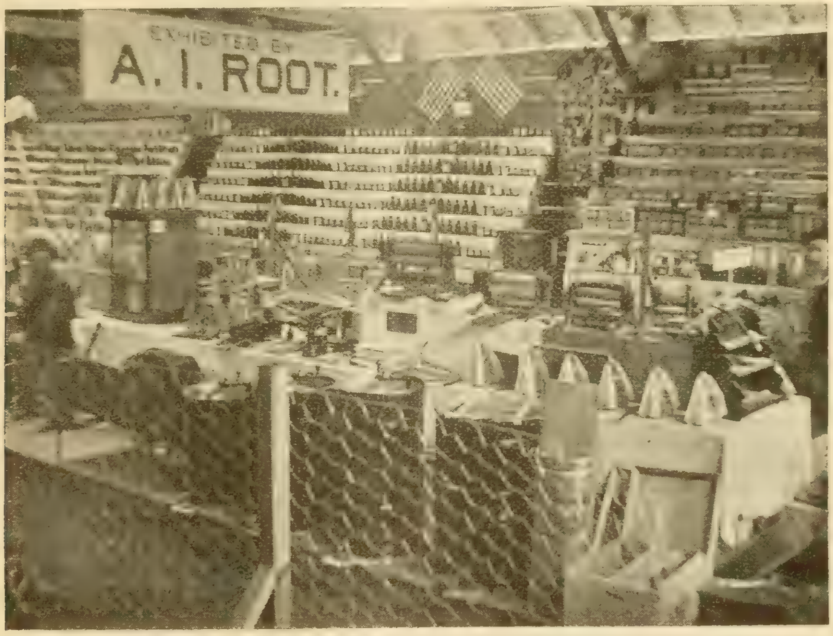
Besides the two older children, are Constance, Caddie, and, last of all, Huber. This sketch would be incomplete were I to omit mention of the many ways that his faithful wife has helped him, in her own quiet, unassuming way, to bear up under his self-imposed tasks; nor should I forget to lay some of the credit to his good old mother, who still survives. It was she who gave him his early Christian instruction, and who prayed for him many years before he gave his heart to God.

Some things concerning the life of Mr. Root I have omitted, because they have been given before. But I must confess, I have not been scrupulously modest in writing up the facts. I have simply told them from the standpoint of another man's son. Without making any apology, I will, therefore, sign myself ERNEST.

THE HONEY EXHIBIT AT THE COLUMBUS CENTENNIAL.

DR. A. B. MASON TELLS SOMETHING ABOUT IT.

FRIEND ROOT:—In order to intelligibly describe the cut of a portion of the "Centennial Honey Exhibit" at Columbus, from Sept. 4th to Oct. 19th last, it may be well to say that the officers of the Ohio Centennial Exposition at my request, and according to a plan I furnished, erected a building 36 x 60 feet for the purpose of displaying honey and the appliances of the apiary. At each side of the building was a platform raised two feet from the ground, and made seven feet wide. In the center of the building was another platform, raised six inches, and eight feet wide, reaching to within about seven feet of the ends of the building. At each end of the building was a narrow raised platform, two feet high and eight feet long. Under the front edge of the side platforms, the space was boarded up, and doors were put in, so as to furnish a safe place to store the boxes, etc., that the exhibitors brought their honey in.



A PARTIAL VIEW OF THE APIARIAN EXHIBIT AT THE COLUMBUS CENTENNIAL.

Between the side and central platforms were passageways, seven feet wide, and the ground in these passageways was covered with old tan-bark. The bark became so nearly worn out by the thousands on thousands of feet that walked on it, that, during the next to the last week of the exposition, one evening after the people had stopped visiting the building my son Lyman and myself took one of A. I. Root's wheelbarrows and wheeled enough nice new sawdust to give the passageways a nice new clean carpet that added very materially to the beauty and attractiveness of the display. Dr. C. C. Miller can be seen sitting on the wheelbarrow at the left of the picture. All that can be seen of the wheelbarrow is a portion of one of the handles that sticks out by his knee. We all regretted that we didn't have that new carpet put down before the International Convention paid us that visit on the 5th of Oct. It made every thing in the building look very much nicer. Even the exhibitors looked and felt better.

I hardly know how to describe the picture, for it will be utterly impossible to give a correct idea of the exhibit from it; but I think I can safely say that the most important and valuable part of the picture is at the left, sitting on the wheelbarrow; and if that part of it was as good as some of the other parts, your readers would at once recognize the familiar face of Dr. C. C. Miller. I'm sure I don't know what "ever possessed him" to sit off in one corner like that, unless it was his—his—his—extreme modesty. P. Benson, on page 24, of GLEANINGS for 1887, informs us that "1 inevitable accemupennyment of troo grateness is modesty."

At the right of the picture may be seen a part of a man's hat and face. This man stands in one of the passageways that run the length of the building and separate the exhibit of supplies on the middle platform from the exhibits of honey on the further side of the building on the raised platform.

In the center of the low platform, and extending from the end to the wheelbarrow on which Dr. Miller is sitting, is a long wide table covered with cloth. The table was "made to order" in a few minutes by your Mr. Whipple, Mr. Will Turner, and my son Ellis. I furnished the table-cloth, and "the boys" soon had things arranged in "apple-pie order." Before the exhibition opened, the exhibitors became thoroughly and practically convinced that "eternal vigilance" would have to be the watchword if the exhibit was kept intact. Some of the visitors' hands were so sticky that it seemed quite difficult for them to lay down what they had taken in their hands to look at; and to help answer that part of the prayer which says, "Lead us not into temptation," it was unanimously "resolved" to have you send us some wire poultry netting, which was on hand the next evening after it was ordered. During that evening and the next morning, before the visitors began to arrive, the netting, which was four feet wide, with two-inch mesh, was put in place the whole length of the side platforms, and on the front edges of them, a portion of which may be seen in the foreground, fastened to a post which was four feet high, two inches square, and braced at the bottom.

In all my experience at fairs, no one thing, unless it was the premiums, ever furnished me so much "solid comfort" as did that poultry netting, which you so kindly furnished us.

About the first thing that attracts the attention in the picture is the large sign, "Exhibited by A. I. Root," that hangs from one of the cross-beams of the building, and it would at once convey the idea that all shown in the picture was exhibited by you. Such is not the case. Although you had a carload of supplies on exhibition, and nearly the whole carload, except the machinery for making sections and the blocks from which the sections were made, was on exhibition in the space covered by the picture, still only such as is on or around the table, and to the right and left of it, belongs to your exhibit. Of course, what is beyond the table can not be seen. What is on the shelves and floor in the back of the picture belonged to other exhibitors.

The first thing in front and at the right is one of your tin-covered comb-carriers, one handle, or bail, of which can be seen lying over on the one-story Simplicity hive at the left. The hive has a division-board in it, and the enamel-cloth covering for the frames lies over it. To the left of the hive is a dipping-can with two dipping-boards for sheeting wax for making foundation. Between the hive and can may be seen a portion of an iron form in which the Simplicity hives are nailed, to keep them square while nailing. The next to the left is a large uncapping-can, and then three different-sized "Novice" honey-extractors. These and the other honey-extractors in other parts of the building attracted a great deal of attention, and were the cause of very many strange and amusing expressions, which are familiar to exhibitors.

Honey-extractors at fairs and expositions furnish a starting-point for explaining to visitors what extracted honey is, and how obtained, and are really as important in a display of extracted honey as the honey itself, if it is desired to have people fully understand what extracted honey is.

To the left of the extractors stands one of your wheelbarrows. It is not the one Dr. Miller is sitting in, though, for he and the table hide that one. Between him and the wheelbarrow, and leaning against the table, is what looks like a stick, but is in reality one of your tin force-pumps, or sprinklers. It may seem that such a machine would be of no special use at such an exhibition; but I can assure you that your Mr. Will Weed frequently made it do splendid service in sprinkling the tan-bark in the passageways, and in keeping down the dust. Occasionally your Mr. Art Pulsifer, who had charge of the section-making and machinery, would "lend a helping hand" in the sprinkling business.

On the left end of the table, with the back toward us, stands a Sturwold show-case in which was exhibited a variety of bee-books, including Cheshire's works. Bee-veils, rubber gloves, etc., were hung on nails driven into the back, which, altogether, made a nice showing; but had you filled it with nice comb honey it would have added immensely to its attractiveness. On the back of the case may be seen a small square white spot. It is one of your cards on which your offer of $1000 is made for comb honey manufactured by machinery, about forty of which were tacked up in conspicuous places in the building. They were the cause of a great deal of talk, bantering, and fun; and several who had "bought machine-made comb honey," as they said, left the building with a vision of $1000 to be so easily obtained by them. Perhaps you have had several applications for it by this time, for we always gave such people one of the cards, and urged them to send you a sample of such honey, with the evidence that it was made by machinery; and we also told them that you were *very* anxious to find out how it was made, so you could go into the business and supply the world with honey, and get rid of the "pesky bees," bee-lawsuits, etc., and any other nonsense that *seemed* suitable to the occasion.

To the right of the Sturwold case is a pyramid of all kinds and sizes of glass honey cans, jars, pails, and tumblers, with a different kind of honey-label on each. On this side of the pyramid, near the edge of the table, is a "World type-writer" that did excellent service when any of us had writing to do; and if we wanted to get a small crowd on short notice, all we had to do was to take the "World" and commence writing, or, rather, *printing*, with it. The next to the right is a feather duster, I believe, but am not sure. To the right of the duster is one of your $3.50 244-pound platform scales, with the scoop nearly full of tin corners for frames. Just beyond this, a little only of which can be seen, is one of your Family Favorite scales. These scales were occasionally tried and compared by bee-keepers and others to whom the "Favorite," with the screw for taking off tare, was a novelty.

The highest of all on the table are four of your foundation-mills—a six-inch, a ten-inch, a twelve-inch, and a fourteen-inch. Some of the visitors were so fond of pointing at these with canes, parasols, and umbrellas, that they had to be placed beyond reach to keep them from being injured; and, in addition to that, labeled, "Hands off!" Sheets of foundation may be seen lying under each of the mills, and the foundation was shown hundreds of times to visitors to illustrate what the mills and foundation were for.

At the right of the mills, on the end of the table, is a nice book-case, loaded with queen-cages, etc. Sticking up from the back of the book-case is a stick on which it looks as if there were a board. Well, yes; it *is* a board, a *paste*board, on which is nicely printed, "Exhibited by A. I. Root, Medina, Ohio." Another one can be seen on the side of the box on which the fourteen-inch mill stands, and part of another shows under the twelve-inch mill, and partially behind a Clark smoker, a row of which is on the table, and different kinds of honey-knives can be seen between them.

At the right of the table, on the platform, beyond the comb-carrier, are Simplicity and Langstroth hives in all kinds of shapes and combinations as they would be left in after having been pulled to pieces to show them, just as a dry-goods clerk will leave things when he or she is showing them to ladies(?) who make a business of shopping to "see things" and waste their own and other people's time. This does not apply to trying on "44" cloaks in Peoria. Now, I wonder if I have put my "foot in it;" I don't mean the "cloak," for "we all wear cloaks."

Well, friend Root, I've just begun to describe the picture, and to tell you of a good many things not shown here, of your own and other exhibits, and matters of interest in relation to the exhibition, so I shall have to write,

To be continued.

Auburndale, O., Dec. 4, 1888. A. B. MASON.

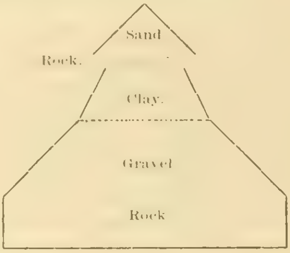
You have given us a very correct impression of the exhibit, friend Mason. It is true, the large sign, "Exhibited by A. I. Root," occupies a rather conspicuous position in the picture. But this could not be helped. If the camera could have been located so as to take in the whole exhibit, the sign would have appeared in moderate proportions. As it was, "our artist" (Ernest) was obliged to stand perched in a corner upon a barrel whose head he felt might at any unwelcome moment precipitate himself, camera and all, into said barrel, telescopic fashion, you know. It didn't, however, as the result plainly shows. Yes, sir; honey-extractors alongside of extracted honey do help amazingly in educating the public mind in regard to our product in its liquid form. These exhibits of all the different "fixin's," and how by their use honey may be produced, prove that our product can be produced *honestly;* and not only that, but by the tons and tons. Did we receive any applications for the $1000 reward for proof that comb honey was manufactured by machinery? Nary a one. Out of the 1500 or 2000 such cards distributed to the doubting Thomases at the centennial, not a Thomas ever *inquired* whether A. I. Root was good for his offer, much less claim the reward. Why did they not? Because they either didn't even honestly believe it, or, if they did, they couldn't find even the *shadow* of a proof. Empty talk is cheap, but proof is another thing.

* * *

NOTES BY THE WAY.

NEAR DEMING, NEW MEXICO.

MY Waterbury says it is 20 minutes of 3; but as there was a change of *two hours* at El Paso it is, in one sense, 20 minutes to *five*, and I notice the sun has quite a mind to stick to the old time, for he is almost down. Very likely he will come to terms, however, by tomorrow night. Here at Deming, mountains are visible on every side, and it begins to be a question which are mountains and which are clouds. Three peaks of the Cordilleras are said to be 35 miles away in Old Mexico. I should not call them ten miles. Some mountains are exactly the shape of a heap of potatoes as we bury them in the garden; others curve inward along the slope, like an inverted morning-glory; others are flat on top. Some are so sharp it seems as if one would not find room to stand on the peak. The rains are constantly washing them down; and as they vary in composition, some parts being more soluble than others, this fact accounts in part for the queer shapes. We have just traversed 30 miles or more of level table lands. The table lands of New Mexico are among the most elevated ground in the United States. Well, this great table land is washed and gullied at the outer edges, enough to show that the different strata have never been disturbed since their formation. Keeping this in mind I will try to explain the origin of some wonderful hills on the edge of the table land that *I* have called "sugar-bowl mountains." The table land is in layers, or strata, as follows: Sand, thin limestone, clay, gravel, rock. Well, the wash and gullies separated some bluffs of table land, and the sand on top—what came down to a sharp peak—assumed a cone shape, as sand always does when the rain washes it down slowly, and here is the result:



Some of the mountains are nearly as round as if turned in a lathe. Now, the mountains in the *table lands* could not have been made by this process; and those we ran near to, show it, for *their* strata are tipped at an angle. Sometimes the rocks are clear up edgewise. It *must* have been done by volcanic agency or earthquakes. After this the rains go to work as before; the two forces make all these wonderful forms. This is a volcanic country, for hot springs are near the road in many places. I haven't seen one yet, but I have been treated to a mirage. An acquaintance (on the cars) was telling me that a certain track we were going over was worthless for cattle, because they could get no water to drink; and just as he left I looked over the plain and saw just ahead a beautiful sheet of water glistening in the sunshine, like silver. I remember I thought it strange there was no depression, for the water seemed right on a level with the grass. I also noticed that the mountain back of it had a little streak of sky right in one side of it. While I was watching it, however, there wasn't any lake at all, and, behold, the mountain had "skipped" also. Mountain peaks are now visible, said to be *100 miles away!*

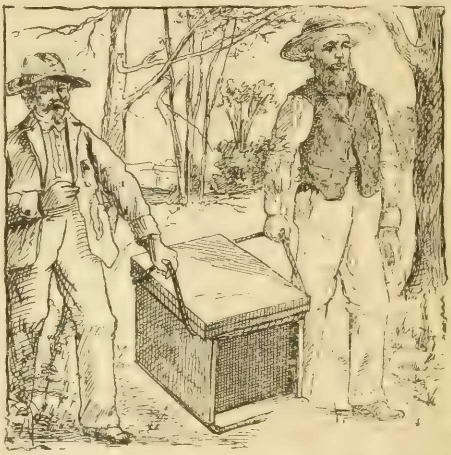
To Huber.—It is now bed time again, and papa is away out in the mountains and deserts of Arizona Territory. To-day I saw a kind of men and women who live in mud houses. They are dark-colored people, and the men wear broad-brimmed hats. The way they make their houses, is to stick round poles in the ground close together, and then plaster mud on the poles. The door and roof are just high enough to let the folks go in. The floor is just dirt, and the roof is made of brush, covered with mud too. It does not rain hard enough to hurt the mud walls here, and it never freezes. The women-folks sweep the floor and walls, and even the roof and dooryard too. Well, papa saw some little bits of "dogs" that live in mud houses too. They dig holes in the ground and pile the dirt all around the hole, and then they sit on the pile of dirt, and bark at the train when it goes by. They are called prairie-dogs, and they live in villages, as the Mexicans do. Some of the Mexican mud houses are made in the side of a hill, and then their house is cool in summer and warm in winter. They have Chinese folks here too. The Chinese make nice gardens. As it doesn't rain, they have little ditches to bring the water ever so many miles from the river. As we ride along on the train the mud houses look very funny, for they don't seem big enough for folks to get into at all. They never have any windows. Good-night.

[*A note from Ernest.*] Just after the last issue of GLEANINGS had gone out, we found there was a batch of copy, some four or five pages of manuscript, which had, somehow or other, "got left out." As the account of the travels ran along continuously, we did not notice the omission from the reading of the proof. It should, however, have appeared on page 943, just before the first paragraph. As it is quite complete in itself, we think our readers will not lose sight of the continuous thread. You know, something always goes wrong when the "big boss" is away. It is not so very bad, but then it would have been better had it appeared in its geographical order.

CARRYING BEES INTO THE CELLAR.

C. C. MILLER TELLS HOW HE DOES IT.

ALTHOUGH we had an excellent article on "placing bees in the cellar," from friend Doolittle, Nov. 1, the importance of the matter will, I think, warrant me in saying something more about it. It may be late for some (perhaps it ought to be for all), but just now many will be interested, even if the bees are all in. For those not physically strong, the wheelbarrow plan may be good. Still, the bees will be shaken up more than by careful carrying, no matter how soft the cushion may be; and, besides, the heaviest part of the work is left unmodified, and that is, lifting the hives from the stand, and lifting them on the pile in the cellar. In many cases it is quite convenient to have two persons carry in the hives, although either or both of them may be far from strong. My own bees were carried in this year by three individuals, either one of whom would have broken down before carrying twenty hives alone. My hives are cleated; and one way to carry them is for one person to take one side of the hive and another the other, walking side by side, each one holding on to the cleat at or near the corner, front and rear. But a better way is this: Take a rope strong enough so there can be no question about its breaking, and thick enough so it will not cut the hand in carrying. We took a long piece of bed-cord, or clothesline, wound it up so it would be the right length, and then wrapped the two ends around and around, and tied them together so that it was much the same as a single thickness of very thick rope. It was long enough so that, when carrying, the hand at each side was three or four inches higher than the hive.



C. C. MILLER'S METHOD OF CARRYING HIVES TO THE CELLAR.

Now both of you take hold of the ropes, one on each side; slip it under the cleat at one end of the hive, then move the hands along and slip the rope under the cleat at the other end, and then each of you take hold of the rope with one hand, the one at the right holding on with the left hand, the one at the left using the right hand, grasping the rope at the middle of each side, and you will carry it just like a basket between you. You will be really surprised at how light it will make the work. The heaviest part is placing the hive on the pile; but two can do it much more easily than one.

The great secret of getting the bees in without arousing them is to handle them very gently. We began taking in Oct. 25; and although the weather was so warm that a few bees would be flying sometimes while we were carrying—I mean they were flying from hives that were standing undisturbed—yet the hives we carried were scarcely ever aroused at all. We kept doors and windows of cellars open day and night, making, as Bro. Doolittle suggests, the temperature nearly the same as outdoors.

If hives are to be piled one on top of another, let a newspaper be placed between. This will save the annoyance next spring of having a quilt stick to the bottom of a hive, and stirring up the family under it.

BEES NOT WORKING ON GRAPES.

For the first time in my experience, bees did not touch grapes this year. I don't know how to account for it. There were plenty of grapes, and part of the time I had 287 colonies standing at home, with nothing to do, fierce to work upon a sugar-barrel or any thing daubed with honey, but they didn't touch the grapes. Against the side of the house, a few clusters were left till after the bees were all in the cellar; but the bees did not disturb them. Understand, that I have bushels of grapes; and other years, unless gathered as soon as ripe, or a little sooner, they were utterly destroyed. Can it be that the insect, wasp, or what not, was lacking that makes the slotted holes? By the way, these punctures are very uniform in appearance, and look like this: °-° (a round hole at each end, and a slit between.

It is a fact, that very few wasps were noticed. Did the drouth of last year kill off the wasps? For several years, apples have been nearly worthless here because so wormy. This year they were good. Did the same cause act to kill off the codlin moth as the maker of slots in grapes? I don't understand it at all; but this year stands out in remarkable contrast with other years, both with regard to grapes and apples. C. C. MILLER.

Marengo, Ill.

Your plan is very simple, and can be quickly put into execution, and good execution it will do too, we feel sure. The only fault we find with it is, that it can not be adapted to those hives that do not have a cleated border at the top, such as, for instance, the Simplicity; but for those who have hives on the style of the old Langstroth, and who are not physically as strong as friend Doolittle, it is just the thing. This matter of how best to carry hives to and from the cellar is an important one. Many a backache may be saved by some such simple appliance as you and friend Doolittle suggest. There are large numbers of our readers, however, who are using Simplicity hives exclusively; and to accommodate these we have asked our foreman, Mr. Warner, to devise something cheap as well as something which can be readily adapted to the Simplicity hives. If he succeeds, we'll tell you about it in next issue. We should like to have our readers suggest such plans as they find to be useful, and, if necessary, make a rude drawing. Don't be afraid to make rough pen-sketches. Our artist will catch your idea, and make for you a finished picture. He may incorporate in said picture yourself, as he did our friend Miller in the one above.—Now, then, as to the matter of bees and fruit. Your observations quite accord with our own as well as with those of Prof. Cook, who expresses himself on the subject in the following article. We have not noticed particularly the kind of punctures or perforations made in the grapes; but if you will turn to page 682, of our issue for Sept. 1st, you will see that, upon careful observation, we came to the conclusion that bees do *not* puncture the fruit, but seek the perforations or soft spots already made either by rot or otherwise. But before we proceed further, let us hear from Prof. Cook.

CAN BEES BITE INTO FRUIT?

PROF. COOK ARGUES THAT THEY DO NOT.

MR. JAMES McNEIL, Hudson, N. Y., asks the question, "How is it that bees can cut old comb and eat holes into enameled cloth, if, as stated, they have no cutting jaws, and can not puncture the skin of sound grapes? I ask for information, as this question has come up and I am unable to find in any of my bee-books a satisfactory answer."

I propose to give this question a candid answer, based on twenty years' study and observation of bees. I believe my answer will be the correct one.

Bees have jaws, and can use them for cutting. Not only do they cut comb and cloth, but even wood. What bee-keeper has not seen soft pine wood, placed at the entrance to close it, very perceptibly worn away by the gnawing of the bees? Thus I believe bees are physically able to cut into sound grapes, just as my horse is able to run away. Yet my horse can't run away. He isn't made that way.

If we examine the cutting organs of all animals—animals fitted and intended by nature to cut and tear—from the lion and the wolf, even to the wasp and locust, we shall find sharp cusps, or tubercles, for this purpose. The tiger-beetle's jaws, with their sharp teeth, illustrate this fact admirably. Many wild bees, and especially the carpenter bees, have just such sharp teeth. The rudimentary tooth on the jaw of the queen and drone bee indicate that the far-away ancestors of our honey-bees also had such teeth. The jaws, however, of our workers are not so (see Figs. 39 and 42 in my Bee-Keepers' Guide). They are more like the gouge used by the carpenter. The edge is not toothed, but a smooth segment. All structural zoology, then, teaches that these are not meant to cut and tear. That they may cut and tear soft substances like wax, and are intended to do so, is proved by their form, and by our observation. That they can gnaw away even structures as hard as soft splintery pine, we know; but that such use is only accidental, and not their real function, both their structure and our observation alike prove.

Bees are guided to their food by smell and light. The juice of a sound peach or grape is sealed, and can not be seen, nor can its odorous particles escape. Let them once escape, even in very minute particles, and how quickly would the bees lap up the delicious nectar! Our observation, and the smooth cutting edge of the mandible of the worker bee, alike show that the bee is not developed to tunnel for its viands. It learns of their whereabouts by the sense of smell, primarily, which sense would be comparatively useless were the nectar-reservoirs first to be unsealed.

That bees are, to a degree, intelligent, and can learn, I have no doubt. But bees have no written language, and so no historians; and the experience of each individual dies with such individual, therefore progress is slow—slower than with savage races of men. And with our bees, even inherited experience is not possible. Thus, we need not expect that our bees will soon reason out the mine of wealth in grape and peach. Of course, the oozing juice, which always attracts bees to fruit, might suggest to some over-wise worker that digging might pay; yet such oozing is rare—too rare to suggest permanent change of habits in sterile individuals.

But how do we know that bees do not tear open the grapes?

1. Observation tells us that it is foreign to their methods.

2. When they attack a vineyard, they all go at once. Of course, escaping odor attracts all at once. To suppose that they all of one accord commenced at a certain day to bite into the grapes, would be like supposing that a thousand Goodyears, Whitneys, or Langstroths, commenced independently and wrought out at the self-same time their wondrous inventions.

3. The closest observation always fails to detect bees cutting into sound fruit.

Thus I would say, bees can and can not cut into sound fruit. While they are physically able to do so, their experiences and methods of work make it utterly impossible for them to do it. They have no motive or knowledge to prompt them to such action, and, like ourselves, they are not prone to dig for nothing. A. J. COOK.

Agricultural College, Michigan.

We feel quite sure, friend Cook, you are correct. Our own investigations with the microscope confirm what you say regarding the structure of bees' jaws. You are quite right in saying that the bees can do it; but that they do do it is improbable, and contrary to general observation. It is only unsound fruit, or fruit that has been punctured by other insects, that is attacked by the bees. Our pets are not then the prime movers in the mischief, although we shall have to admit, that, if it is once started, they will make matters considerably worse. Now, friend Cook, we should like to have you tell us what insect makes this chain-shot perforation that friend Miller describes at the close of his article. Is there not some insect whose mouth parts structurally would make such a wound? It is an interesting subject, and we hope our readers, professors or otherwise, will make close observations.

RAMBLE NO. 9.

HIS OUTING EXPEDITION IN THE VICINITY OF LAKE GEORGE AND ITS MOUNTAINS.

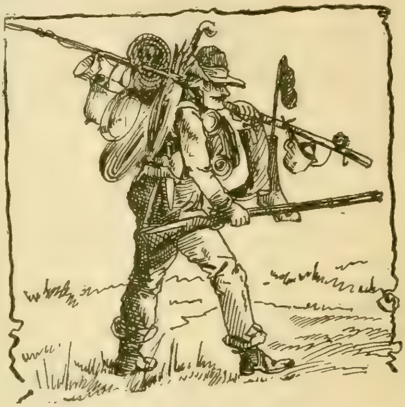
THOSE who attended the N. Y. State Convention in Albany in 1887 will perhaps remember the kind and almost urgent invitation extended by Mr. Andrews to bee-keepers and their wives, who desired to visit Lake George for a week's outing; to come to his cottages on the shores of this historic and famous summer resort, and have a full and free enjoyment of the same with him. Mr. A. was in hopes that enough interest would be manifested to have a sort of bee-keepers' convention; but it seems that the Rambler is the only one who has thus far answered the generous call; and my sojourn of four days was of such a pleasant nature that it is far beyond the power of my feeble pen to portray the many things to enjoy and make happy. I wish my descriptive powers could supplement Bro. A.'s invitation, and yet draw many bee-keepers here next September, for a few days of enjoyment and change from the routine of home duties.

Answering to an early morning call, the Rambler rigged himself out for the lake, twelve miles distant. Our party consisted of Mr. Andrews ("Uncle John," as he is familiarly called), Mr. Lockhart, Dr. Vandermerker, and the Rambler. I felt quite safe against accidents and sickness, with a doctor along; and I was encouraged to keep trudging along, though I was greatly fatigued. I thought if I faltered, a blue pill or a bottle of inexpressible bitterness would be offered to me; but when we safely reached the cottages, or Camp Andrews, as it is locally named, I found Dr. V. to be a homeopath, and carried nothing but harmless sugar pills.

Our first duty was to unpack our burdens and get dinner. I found my companions adepts in the cooking line, which was never the Rambler's forte. Washing dishes, however, is an accomplishment upon which he prides himself. Years ago his best girl gave him unlimited praise on this point.

It was Saturday, and we thought it proper to try our skill with hook and line. With Uncle John for pilot, we rowed out to the fishing-ground, and in a few hours had enough to last us over Sunday. Uncle John is a correct Methodist; and it is a mark in favor of Camp Andrews to learn that none of the summer occupants indulge in fishing on Sunday, though occasionally church members in other camps often forget their vows in this respect, or, in other words, leave their religion at home while camping.

As there was no church within several miles of us, a stroll in the woods gave our limbs exercise, and our mind subjects of thought, until we found ourselves upon the top of Buck Mountain, a bold mountain that not only elevates the body into invigorating air, but the mind also, to which the eye reveals a broad expanse of landscape. Beneath us lay the beautiful lake, which could be traced nearly its whole length, 30 miles, studded with its 365 beautiful islands (just as many islands as days in the year). As it lay before us on this quiet Sabbath day we were led to thank God for the beautiful scenes he has given us to enjoy. The Rambler had a sense of ownership in the grand old mountain, in the lake, and in the sky. It was all mine to enjoy; and not only mine to enjoy for the few moments, but it was mine to take with me in memory, and to recall, and to enjoy again and again while life and reason last. It is a consolation to a poor man to have this sense of ownership; and the Rambler has often thought of Bunyan's vivid picture of the man with the muck rake, intent upon the sordid things of this world, which were as straws, while over his head was a crown he could have by turning his efforts in that direction. So in the legal ownership of land, or an elegant mansion, the man who sees only dollars in it, and is boasting of the dollars he has paid for it, does not enjoy it so well, so deeply, or so lastingly, as the poor man who looks higher for his inspiring motive.


THE RAMBLER RIGGED FOR THE LAKE.

Mr. L., the doctor, and the Rambler, enjoyed this mountain scene. Mr. A. felt that his age would not permit the climb, though he had rambled these vales and mountains in years gone by, in pursuit of deer, bears, other wild game, and in bee-hunting. We descended the mountain, and found a sumptuous fish-chowder dinner awaiting us, to which we did ample justice.

Monday and Tuesday of our visit was well put in, hunting and fishing, and our table was well supplied with fish, partridges, and squirrels. Uncle John had a passion for trolling for salmon trout, and for this purpose a line some two or three hundred feet long is used, and the fish are caught in water 150 feet or more in depth. The line is weighted with a pound sinker, and the hook bated with a white fish. Troll this near a trout, and you are quite sure to hook him. Uncle John hauled in a few one and two pounders, and one whopper as long as your arm, which made the Rambler feel like dropping the oars and sailing his hat in the air. As it wasn't a good place to sail hats, he stuck to his oars.

THE DOCTOR'S MORNING CALL.

Evenings we were all interested in Uncle John's bear and deer stories. The season had just opened for hunting deer, and hounds are put upon their track, and the poor hunted animal puts for the lake, which he plunges into, avoiding the hounds only to fall a prey to the watchful hunter on the lake.

We were much interested in his bee-hunting experience. His plan is to start them so as to line them toward the sun, claiming that bees can be seen at a greater distance when thus flying.

There are but few bees kept near the lake. Mr. S. has an apiary near the head of the lake, and finds pasturage on green osier, button-bush, and lily-pads. Many bees are lost while crossing the lake, and Mr. S. once saw a whole absconding swarm in the water. He thinks the queen must have blown down, and the whole swarm followed. No doubt this swarm set out with great expectations; but, like many human lives, their expectations ended in disappointment and disaster, a portion of which things have now and then fallen to the lot of the RAMBLER.

We have enjoyed your visit to Uncle John thus far very much, friend Rambler. The only thing we regret is that we could not have been there likewise. Only he who has been out on one of these outing excursions knows what it is to have a keen appetite, heightened by the morning air, satisfied by a good breakfast of fish right from the lake.—We are very glad indeed to know that our Uncle John is a "correct Methodist." It is to be regretted that there are not more such who have charge of these camp-grounds Sundays. Yes, friend Rambler, those mountains are ours to look at and enjoy, and would that some of our discontented folks might feel this sense of ownership, instead of complaining because the wealthy are rich and the poor are poor. We are glad to get the facts in regard to bees near the water.

PHILIP H. ELWOOD.

THE MAN WHO OWNS 1000 COLONIES.

IN a pleasant quiet home in Starkville, Herkimer Co., N. Y., in sight of his father's house, where he was born in 1847, lives the subject of this sketch. He is of English descent, and comes of the good old Quaker stock, in which he may take just pride. His quiet and unassuming life bears witness that the best characteristics of this sect have a strong hold on the present generation. I can not forbear, in this connection, an allusion to an elder brother, Rev. Isaac N. Elwood, who, previous to his lamented death a little less than two years ago, was well known in the Methodist conferences of Michigan, as a gentleman of rare qualifications, and enthusiasm in his chosen work. The same earnest, faithful spirit seemed to inspire these worthy brothers.

Mr. Elwood's opinion of his own merits is so modest that he is never found pushing himself into any position of prominence. While in attendance at his church, a few years ago, his pastor remarked to me that the greatest defect in Mr. E.'s church work was, that he underestimated his ability as a leader. While this is one of his marked charactertics, he is in many things one of the most persistent and logical investigators, and most thoroughly practical business managers, I have ever met.

He supplemented a thorough common-school education with a complete course at Cazenovia Seminary, N. Y. After an interval spent in teaching—some of the time in a high school in Michigan—it was his intention to take a college course. Upon the advice of his physician he abandoned the project, and began to look for some healthful and congenial outdoor occupation.

He was now about twenty-five years of age. Like many other young men who have since honored the calling, he went to M. Quinby for advice, and it was at that home that I first met him. My first impressions of the man have been lasting. I have been intimately connected with him in every-day business transactions; have met him in the apiary, the workshop, the bee-keepers' convention, the church, and many times in my own home; and everywhere and always he has been the same thoughtful, considerate, Christian man whom all are compelled to honor.

Deciding to undertake bee-keeping, he formed a partnership with Capt. Hetherington, which continued for five years, when it was dissolved, and he pursued the business by himself. He is an earnest advocate of the Quinby closed-end frame, and uses no other. He early adopted a section for his comb honey which was 5¼ x 5¼ in., and took 5 x 5 glass. He has since used this section exclusively, and his sales have proved the wisdom of his choice.

His method of wintering bees in what he calls his "mud huts," and his system of ventilation, have proved very successful. Just here I desire to say that, if those who are interested in this subject of "winter ventilation," which is just now commanding so much attention, will refer to the *American Bee Journal* for 1878, p. 233, they will find an article on this subject, which shows more scientific research, and gives more valuable and conclusive facts, than have come to my attention from any other source.

His thoroughness and accuracy are manifest in all of his operations. His honey is always in demand in the leading honey-houses of New York, and bears comparison with the brands of the best producers in the country. No better evidence of his skill and the superiority of his methods is needed than the fact that his honey took the first prize at the Paris World's Exposition, where it was exhibited just as it was ordinarily prepared for market. I shall never forget the happy face of Mr. Quinby, on his return from a visit at Mr. Elwood's home, as he told us of the quantity of extracted honey he had seen taken from a single colony—57 lbs., all of which was gathered in two days. At that time this was the largest amount on record.

The results of wintering in his bank cellars were satisfactory, as evidenced by his putting 175 colonies in one cellar in the fall, and taking out the whole number in good condition in the spring. The wood used in the construction of these cellars was inclined to dry rot, hence was not durable, and he eventually discarded them. When he was about putting up new buildings for his home, he arranged the winter quarters for his bees very systematically under his wagon-house and honey-room. He is, this winter, putting 1000 colonies into these apartments.

He has taken an active interest for several years in the work of the Northeastern Bee-Keepers' Association, of which he was one year president. When unanimously urged to accept the office the second year, he declined in favor of a friend whom he desired to favor, from what he believed to be a most worthy motive.

He made an effort to establish a "Honey-Producers' Exchange" some years ago, realizing then the importance of the movement which has but recently received the co-operation of progressive bee-keepers.

While he has not been a frequent writer, what he has written has given him rank such as few have attained. In fact, I know of no one, whose writings are so limited, who ranks with him. I refer especially to his articles on "Ventilation," "Hibernation," "Prevention of Swarming," and the "Life and Services of the late Moses Quinby."

His home is blessed with a helpful wife and three healthy boys. To be the possessor of such a home, with an appreciation of all it means, places a man on the right side of every question which concerns the welfare of his brother-man. No greater pleasure can be mine than to record my friend as on the greatest issue which stands before the world today. In 1873 there was one prohibition vote polled in Herkimer Co., and that was deposited by P. H. Elwood. He has since been a candidate for member of Assembly on this ticket.

As a successful bee-keeper, a scientific, scholarly, and practical writer, a good citizen, a true friend, and a true Christian gentleman, Philip H. Elwood stands in the front rank. L. C. ROOT.

Stamford, Conn.

Thanks, friend Root, for the interesting facts you have given in regard to our friend Elwood. We have long known of him as an extensive bee-keeper, but did not suppose that he owned 1000 colonies. He has not written often, it is true; but what he has written has been practical and to the point, and how could it be otherwise—backed by success? We hope he may be induced to let his light shine more, now that we are a little better acquainted with him personally. York State ought to be proud of having two such *extensive* bee-keepers—Philip H. Elwood, with his 1000 colonies, and Capt. J. E. Hetherington with his 3000 colonies. The portraits of both of these gentlemen appear elsewhere in this issue.

ANOTHER LETTER FROM THE ISLAND OF MINORCA.

THE PROGRESS OF BEE CULTURE, ETC.

DEAR GLEANINGS:—I am tempted to contribute my little mite to your interesting publication. We apiculturists of all climes and countries and opinions, seem to be ever drawn together by some sort of sympathetic attraction, whose center or objective point is ever the queen-bee. Without this royal personage, indeed, what would become of us all, republicans and monarchists? Nay, what would become of the poor bees themselves and all their precious and artistic labors?

I am, therefore, always doubly thankful when, out of his overloaded sack, the mail-carrier brings forth GLEANINGS from over the pond; for therein I am almost sure to find every thing of interest that the bee-keeper's heart can long for. And living as we do on an island—not exactly in mid-ocean, where Wendell Phillips once wished to anchor Massachusetts—but in the classic Mediterranean, celebrated for the superiority of its honey ever since the ancient bards sang the excellencies of classic Mount Hymettus, in Greece.

I was the other day much amused by the *World's* account of how salt water is detrimental to the flavor of honey, published in your October number. Well may you say there is no truth in the statement. That *World* chap would fain annihilate at one fell blow all the honied aspirations of our Atlantic and Pacific brethren living within five miles (nautical?) of the most outlying cape and promontory. This would be worse tactics than the Canadians ever undertook to carry out toward our fishermen. Perish the thought!

OUR HARVEST.

Our harvest has been very good. Indeed, I incline to the opinion that a fair honey-yield seldom fails here, for our summers are dry, which, I take it, is the proper thing for honey production. And such honey! I wish, friend Root, I could send you a sample. And perhaps I may, some day.

SMALL SECTIONS.

Last summer we also undertook the making of the Harmer and Rambler sections (never had heard of the latter) both square and round, and we soon came to the same conclusion, viz.: that it didn't pay. They bulged badly, and were generally unpresentable, and therefore unsalable. They were *no good*, as our natives put it.

SIMMINS' NON-SWARMING SYSTEM.

Not desiring much increase at present, we also adopted the "Simmins non-swarming system." This consists in setting an empty story with frames containing "guides" underneath the brood-combs. Of course, a colony will not swarm with so much vacant space in the hive. But I am not sure it is good policy. However, it certainly works the desired result.

APICULTURAL EXHIBITS IN BARCELONA, SPAIN.

Even though Americans are not, as a general thing, so partial to Spanish affairs and men as they should be, for the good book tells us to love our neighbor as ourself, and chivalrous Spain has more than once returned us good for evil, I can not but think some of your readers must have found their way to Barcelona the past summer, where the brilliant World's Exposition has been so successful, and been visited by crowned heads and "sovereigns" without number. The *rendezvous* in that harbor of the most powerful squadrons in the world has also given *eclat* to that imposing spectacle in the real but not royal capital of Spain and Spanish industries.

I am happy to inform you, that, thanks to our unceasing propaganda, modern apiculture was there honorably represented by over a dozen exhibitors, and that our house was honored with one of the only ten gold medals awarded to Spanish industries, by the unanimous decision of the judges. You will understand, that, though we are Americans, our industry on Spanish soil is considered a national one, of which Spaniards are justly proud. One or two of our pupils also carried off lesser prizes. We presented, among other notable products, some beautiful sections, diamond-shaped, which, placed together in a glass case, in the form of a crown, or a star, produced a pleasing effect. This was original with us, but I would hardly advise imitation by your readers, for they are a great bother. We also presented some very elegant glass pots, made in Paris for us, and filled with such pure and transparent honey as made one's mouth water. (Now, friend Root, don't imagine I am trying to have you publish a bee advertisement for me. I am simply relating facts, "all of which I saw, and part of which I was," as the classic has it.)

MINORCAN QUEENS.

As you may have read in the *British Bee Journal*, we have this summer had half a dozen Minorcan queens introduced into the apiaries of Messrs. Abbott, Simmins, Blow, and others, in England, for trial; also one in Mons. Bertrand's, Mr. Cowan's friend in Switzerland, the able editor of the *Revue Internationale*. If you read this *Revue*, or our own *Revista*, which I send you regularly and hope you receive, you will know that Mr. Bertrand says our queen is very prolific, it still keeping up two frames of brood when all his other hives have stopped breeding. He also calls attention to the fact that our bees, all born in Switzerland, have nevertheless barricaded their entrance door in the peculiar way they all do here. "It is the only hive that has so proceeded," he says; "was it done to defend itself against the sphynxes and beetles (*cetoines*) that abound in Southern countries? This instinct of self-defense has been transmitted in the egg, according to Vogel, as an immaterial quality." You also know that Vogel is a great European authority on apiculture, is President of the Stuttgart Society of Austrian and German Apiculturists, and editor of the *Bienen Zeitung*, the oldest bee publication known, and which saw the light for the first time 44 years ago.

I inclose one or two photos of our apiaries, the first ever seen in Spain. I will also send you a Minorcan queen next spring, if you desire it.

F. C. ANDREU.

Port Mahon, Island of Minorca, Nov. 15, 1888.

We are glad to hear from you, friend A. From various allusions which you make in your article, it seems evident that you are pretty much of an American in feeling, though your home is on the other side of "the pond," and you an editor of a Spanish bee-journal besides.—Yes, we have noticed the items concerning the Minorcans. That these bees, though born in another climate, should still contract their entrances where such precautionary measures were not necessary, is an interesting fact indeed. Don't you suppose they kind o' remembered what their fathers, or, if you please, their great ancestor aunts did? Thanks for your photos. They have been placed in our collection.—We should be pleased to receive the queen whenever the weather will be suitable enough to send her next spring, which with us will be about the 1st of May.

MRS. CHADDOCK'S VISIT

TO MRS. L. HARRISON, CONTINUED.

AFTER I had spent all the money I had, and borrowed some of Mrs. Harrison, I had bought every thing that I wanted—that is, nearly every thing—and we left the business part of the city and drove out to "the Park," to call on some friends of Mrs. Harrison's. It is a sort of water-cure-electrical institution. They have been doctoring Mrs. H. and her family for years, and she likes them better than Professor Cook or anybody. The lady physician looks like the picture of Martha Washington, and she carries herself like a princess. (This sentence is borrowed from somebody, but I do not know who, or I would give credit. I never saw a princess, and, of course, do not know how they do carry themselves; but I thought it would sound well here, so I put it in). This Mrs. Dr. Welsh was in the Chatsworth horror, and lay for three hours under the wreck before they could get her out. She was not crippled, nor any thing, but the railroad company paid her $1500 for the injury to her nervous system. All the time that we sat in their beautiful and newly furnished parlor, that little Lucy kept me on tenter-hooks. I was trying to talk to Dr. Welsh, but I could not connect my sentences very well, because I was so much afraid that Lucy would pull the "bobbles" off the lovely new curtains, or knock out a pane of glass, or something. And the doctor was as much troubled as I was—possibly more. She spoke to the child several times, and requested her to please keep her hands off the curtains, and not to scratch the paint with the jagged stick that she had picked up on the sidewalk. Mrs. Harrison was busily engaged, talking and laughing with Dr. Graham, but she turned to Lucy from time to time and bade her be quiet. When I could sit still no longer I went over to the little lady and asked her to give me the stick. She gritted her teeth and clung to it like grim death.

She had scratched the new paint off the window-sill, and barked the arm of the chair that had the blue ribbons on. I heard Mrs. Harrison say, in a laughing way, "Mrs. Chaddock thinks she can manage Lucy, but I guess she'll find she has her hands full." I stooped down and whispered in Lucy's ear, "I'll give you a penny when we get home, if you'll give me the stick."

"Give it to me now!" she answered, as quick as a flash.

I gave it to her, and took the stick, and she did no other mischief than to upset the chair with the blue ribbons, and bang it on the floor. When we got out of the phaeton at Mrs. Harrison's door, Lucy came up to me and said.

"Here, you take this penny back; you don't need to pay me for that." I told her to keep it. This child is five years old; and if I had her and could give her a little *manage* treatment now and then, she would be a most lovable child.

Mr. Harrison had been out to the farm, and he came home with a load of apples. He is a man who tells anecdotes. He said at the breakfast-table that the old Dutchman who lives on his farm has a son who is a young man, and that, one Sunday morning, the son said to his father.

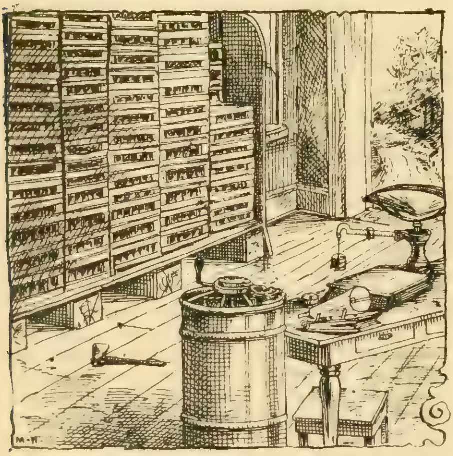
"Fadder, I goin' to pring home a vife purty soon."

"All right," said his father; "pring home a vife if you wants to, put don't pring no vomen here vhat has a puzzle on her pack."

"Oh! put, fadder," replied the young man, "day all have 'em, und if I doan get one mit a puzzle, I can't get no vife at all."

"Very well; you shall stay single den, for I won't have no vimmins mit puzzles about me."

Mrs. H. has 600 lbs. of honey stacked up in her honey-house. She sells extracted honey at 20 cents a pound—just the same price that she gets for that in the comb. If Mrs. H. sells her extracted honey for as much as comb honey is worth, then extracted honey is worth just as much as comb honey. Any article is worth all that it will bring; and if she sells extracted honey for that price, it must be worth it. Does anybody see any other answer to this problem? I want to say some more, but I fear you will think this too long already.



MRS. HARRISON'S HONEY-ROOM.

Vermont, Ill. MAHALA B. CHADDOCK.

THE ALABAMA STATE BEE-KEEPERS' ASSOCIATION.

FRIEND JENKINS' REPORT.

I INCLOSE a copy of a "piece" I wrote for the edification of the members (and others) attending the third annual conclave of the Alabama State Bee-Keepers' Ass'n. But it rained and rained the day and night before the date of meeting, and I guess the ardor of most of said members was not only dampened but *drowned*, for none but the secretary and treasurer and three others got there, so we had no meeting. But the secretary and treasurer (that's "me") thought it would be a pity to deprive the world of such a good "piece," if anybody would print it. They wouldn't come to Montgomery to hear it, so possibly they will read it if it goes to them in GLEANINGS. But it isn't much after all; and if you think it would best adorn a corner in the waste-basket, let it so adorn, and the secretary and treasurer won't care a bit. I send you a tissue copy, so that it won't take up much room in the basket. It would probably prefer a southerly location in the same—southwest corner lot, for instance.

THE VALUE OF APICULTURAL LITERATURE. WRITTEN BY J. M. JENKINS, FOR THE ALABAMA STATE BEE-KEEPERS' ASSOCIATION.

The science of apiculture has received the earnest consideration of philosophers, professors, statesmen, and others—men of every station and calling in life, from the most ancient periods of history to the present day; and there have been thousands of volumes of books and periodicals published in the past relating to apiculture. But as the practical movable-frame hive is a modern invention (only about 40 years old), its manipulation and successful use for honey production will be described only in the publications of the present age. For the same reason these books cover the whole ground more completely, their authors having, in addition to previous knowledge of the subject, this grand invention to aid them in their research and experiments. There are several excellent textbooks, of recent date and moderate price, before the public, and no one attempting to keep bees can afford to blunder along in the dark without one or more of them.

What would you think of a young man, who, no matter how lavishly endowed by nature with brains and reason, should start out, without study or preparation, to make a physician of himself on practice and experience alone! That is precisely what a great many bee-keepers (?) do! If he lives long enough, and the stock of patients or bees, or of medicine or money, does not become exhausted, he may in time make a passable doctor or bee-keeper. But, my friends, what a long life he will need! No, we can not afford to start at the bottom and set at naught what has required thousands of earnest thinking men, and thousands of years, to accomplish, whether in medicine, apiculture, or other problem of life.

But some one says, "I don't believe in book-farming." Very likely the same person scorns the idea of himself learning any thing from books about bees. He will probably intimate that what he doesn't know about bees isn't worth knowing, for his pap and his grandpap before him all kept bees, "but the worms got amongst 'em a few years ago and killed 'em all out!" He will also inform you that our winters are not cold enough to kill the worms, and for that reason the South is not a good bee-country. He also relates wonderful stories of his ability to *charm* bees, and handle them as so many flies, but fails usually to disclose his *charming* secret to your *charmed* senses.

It is not recommended that one follow the books in every minute detail, but to study the theory and practice and experiments of others and modify them to suit your own case, considering the season, your climate, the flora of your vicinity, your market, etc., thereby combining theory and practice. I feel safe in saying that a man may learn more about bees in one year by careful study of the excellent books available, and the intelligent application and practice of his studies, than he would in twenty years without reading, relying upon his own experience and discoveries for information and success. Life is too short to be wasted in solving mysteries that have already been solved, and in making discoveries that were given to the world through the printing-press long ago. Therefore let us make a short cut to proficiency in bee-keeping, by reading the best bee-books we can get, and the best bee-papers that are published, and at the same time study our bees, visit our neighbor bee-keepers, attend the bee-meetings, talk bees, and —*think*. J. M. JENKINS

Wetumpka, Ala., Nov. 14, 1888.

We are very sorry, friend Jenkins, that it rained and rained. We could not, therefore, with your very *small* attendance, refuse to publish that piece, for it would be too bad to make it adorn the waste-basket, even the southwest corner of it. We hope those "paps and grandpaps" who know it all will carefully peruse your "piece."

OUR QUESTION-BOX,

With Replies from our best Authorities on Bees.

All queries sent in for this department should be briefly stated, and free from any possible ambiguity. The question or questions should be written upon a separate slip of paper, and marked, "For Our Question-Box."

QUESTION 94.—*Is a dry frost-proof cellar, with living-rooms above, better than a special repository, likewise frost-proof partly above and partly under ground, independent of any superstructure?*

The one is just as good as the other, if you can keep the temperature at 42 to 45°. DADANT & SON.

I should prefer an independent building—the more underground the better, if in dry soil. L. C. ROOT.

A well-ventilated cellar, frost-proof, and of nearly even temperature, is my choice. The matter of living-rooms above cuts no figure. GEO. GRIMM.

I see no reason why it should be. If sub-earth ventilation is adopted, then the fire above would aid in effecting a change of air. A. J. COOK.

My experience has been so limited in cellar wintering, that I will not attempt to answer most of these questions on that subject. O. O. POPPLETON.

No, I think not. I know no reason why it should be, and the special repository would certainly be subject to less noise and jar. JAMES HEDDON.

"Better than a special repository" for what? If for vegetables, etc., I should say yes, because more convenient; if for wintering bees in, I should say no. DR. A. B. MASON.

A cellar may be just as good as a special repository for wintering bees, if carefully prepared for that purpose—no better. I should prefer the special repository as described. H. R. BOARDMAN.

The difference, if I understand it, is between the warm floor overhead and a cold one. I have a cellar of each kind, and I prefer the house to the shop, which has no fire generally. C. C. MILLER.

Bees can be wintered nicely in a dry frost-proof cellar with living-room above. I never put my own bees in the latter kind of structure mentioned; but, using my eyes and my ears, I judge they are sometimes safe, but oftener dangerous receptacles. E. E. HASTY.

With living-rooms above, there is necessarily a fire, which would tend to make the cellar warmer than a cave or other repository, independent of a superstructure, would be; and in severe weather this would likely be an advantage. Where the chimney starts from the bottom of the cellar with a flue near the bottom, the ventilation, produced by the draft of a fire, is likewise an advantage. MRS. L. HARRISON.

After an experience covering a number of years, with both a cellar under living-rooms and a special repository, I prefer the latter; yet a good house cellar is a very good place to winter bees—much better than to try to winter them on their summer stands in single-walled hives. However, I am in favor of wintering a part of an apiary on the summer stands in chaff-packed hives. G. M. DOOLITTLE.

The prevalence of opinion seems to be to the effect that a cellar is no better than a special repository, either one of which being frost-proof; but Dr. C. C. Miller and Mrs. Harrison seem to favor the cellar on account of the warm floor overhead. Prof. Cook thinks the living-rooms would aid in effecting a change of air, providing a sub-earth ventilator were used, although it is evident he inclines toward the special repository. In a word, either a good cellar or special repository may be made to answer the purpose.

QUESTION 95. *a. What do you assign as some of the causes of "roaring" among bees at times in the cellar? b. and severally in order, what methods would you adopt to quiet them, providing one or more of the plans should fail?*

I have never been troubled with the "roaring" mentioned, and am not competent to answer. DR. A. B. MASON.

a. Generally it is due to a lower or higher temperature. b. I would try a thermometer first, then act accordingly. DADANT & SON.

a. 1. Want of water; 2. Too high temperature; 3. Lack of ventilation. b. 1. Give water (or snow); 2. In some way, lower the temperature; 3. Ventilate. MRS. L. HARRISON.

A sudden change of temperature, a draft of air, or any kind of disturbance. The winter room should be so arranged and managed as to avoid these causes of uneasiness. L. C. ROOT.

I think it comes from some disturbing condition, either of food or temperature. If food, it is difficult to remedy; if temperature, it may often be checked by raising or lowering the temperature.

A. J. Cook.

In every instance when my attention was attracted to a hive of bees by its roaring, it was quieted by placing a wet sponge over the holes on the brood-chamber, or covering the brood-chamber with a wet cloth.

Chas. F. Muth.

Two low and too high temperature, any disturbance, and, perhaps, more common than any other cause, is the one of disease caused by consumption of pollen during confinement. The second part of your question will suggest its own answer.

James Heddon.

Almost any unfavorable condition that causes the bees annoyance will cause them to be more or less noisy. If they are not reasonably quiet in the cellar or repository, something is radically wrong. I would try to discover what it was, and make it right if possible.

H. R. Boardman.

a, b. I hardly know what you mean by the term "roaring." Any unusual disturbance is likely to make them noisy. I do not meddle with my bees in the winter, further than to see to it that the temperature and ventilation are proper. If still they feel inclined to "roar," why, let them roar.

Geo. Grimm.

First, and most important, impure air. Remedy, open the doors at night—windows also. If weather did not permit, I would try a big snowball put close to each entrance. ('Spects it yields ozone.) If I failed I would ask advice of somebody who knows more about cellar wintering than I do. Second, dysentery. I doubt if there is a practical remedy. Third, too much brood-rearing; hard to manage, but top ventilation might, with care, be tried.

E. E. Hasty.

That which most often causes this is the breaking of the cluster to get in a fresh supply of honey. I generally find one or more colonies thus noisy every time I go into the cellar, but rarely ever the same colony at two different times. If the cellar gets too cold or too warm, then the whole number in the cellar will be noisy. Where such a state of affairs exists, remove the cause, either by raising or lowering the temperature, and they will become quiet.

G. M. Doolittle.

a. I think they roar 1. by spells (individual hives) when they rouse up to turn over in bed or take a fresh lunch.

2. When they get too cold.

3. When they get too warm.

4. When the air is foul, especially when warm and damp toward spring.

b. 1. Let them alone.

2. Increase the fire, or open the door from a warm room.

3. Put ice in cellar, or open cellar doors and windows at night.

4. Open doors and windows at night, and leave them open next day till bees get uneasy.

C. C. Miller.

The cause of roaring seems to be too high or too low temperature; improper food, such, for instance, as too much pollen; improper ventilation, and lack of moisture. Knowing the cause, the remedy easily suggests itself; but a difficulty presents itself: How are we to know the cause? We are inclined to the opinion that the only way is to try the several methods as indicated in the statement, in the latter part of the question. Having found the remedy, the *cause* is made evident. If the bees roar from improper ventilation, is not the sub-earth ventilator a valuable adjunct to cellars or other repositories? and is it not equally valuable in lowering the temperature? If so, shall we be in too great haste to declare the sub-earth ventilator unnecessary?

Question 96.—*Is a cellar, partially darkened, as suitable for wintering bees as a cellar absolutely dark, in either case good ventilation being assured? In other words, should a cellar be so dark as to require a lighted lamp on inspection tours during the day, for the best results in wintering?*

The cellar should be absolutely dark.

Geo. Grimm.

From my experience, I should prefer a dark cellar.

Mrs. L. Harrison.

I prefer to have every ray of light excluded if possible.

H. R. Boardman.

We prefer a dark cellar. We do not inspect, except to see the degree of temperature.

Dadant & Son.

I prefer a cellar perfectly dark. Have the bees in so good condition that they will need no "inspection tours during the day."

L. C. Root.

With temperature just right, I do not think light would do harm; but as perfection is such a rare thing in this world, I prefer my cellar perfectly dark.

A. J. Cook.

I prefer the dark cellar, for the reason that it requires a nicety of temperature, etc., to keep the bees quiet in a light cellar, which is not required in a dark one.

G. M. Doolittle.

The partially darkened cellar will be all right. You will winter your bees well, and be an advocate of a little light, enough for convenience in the cellar, provided, however, all other conditions are favorable.

James Heddon.

I have been quoted as saying that light in the cellar is not injurious to bees. If the cellar is kept cold enough, light will do no harm; but with the temperature at 45 to 50°, as I like to have it, *light is injurious in my cellar.*

Dr. A. B. Mason.

My bees at present writing don't seem to suffer any inconvenience from light, and, as a general rule, bees in best condition don't, especially if the light be gradually introduced. Bees in bad condition are made more uneasy by light, and, on the whole, I'd rather be able to make my cellar perfectly dark.

C. C. Miller.

I know from experience that a cellar with doors and windows open a good part of the time, and people coming and going at will, can be used successfully to winter bees. Lack of large experience in cellar wintering should make me backward about being positive; but I incline to say, Let them have the light until you have to darken the cellar to keep them in.

E. E. Hasty.

While the light may not be deleterious at times, generally speaking it seems to be agreed that it is better to have the cellar or repository as dark as it can be made.

HEADS OF GRAIN

FROM DIFFERENT FIELDS.

A TIMELY WARNING.

DR. ROSS died last month of hemorrhage of the lungs, brought on by trying to save some little ducks that a vicious pig was running after. He lost so much blood that he died in two days. He was ready to go at any time. He did a great deal among the poor, and always went to them when other doctors refused. Much labor weakened his lungs, when in his Chicago practice. He came here to get well, and was doing finely, only he was not careful of himself. **J. J. LAWSON.**

Lookout Mountain, Tenn., Oct. 31, 1888.

Your little story, friend L., is sad indeed. It only illustrates how many another death has been caused by some little trivial circumstance. The poor man ought surely to have known that such violent exercise was dangerous to his weakened constitution. At this time of year it is a very easy matter to contract colds simply through carelessness, and the result may be no less severe than in the incident above related. Our love for the dear ones around us, as well as their responsive love toward us, should make us especially careful of these lives which God has given us. The lives of a few young ducks did not begin to compare with the worthy life of Dr. Ross. The subject does not strictly belong to bees, but it is such a timely warning that we hope our readers will all take note.

ITALIANS AND MOTH WORMS.

I must write a few words in regard to Italians. I have been trying to raise bees for 20 years, but the moths would clean them up in spite of me. They are fearful here in the South. About eight years ago Mr. Taply bought a dollar queen of you. I in turn got some of him. I have had them three years. I now have 27 colonies, and have never found a moth worm in their combs, no matter what kind of hive I put them in; they are the best property I ever owned. I want no more native bees for me.

Caledonia, Miss., Nov. 26, 1888. **W. L. LAWS.**

PERFORATED ZINC; ITS USE AND ABUSE.

Do the sheets of perforated metal keep the queen out of sections and extracting frames? Are they a success? Is there any great objection to their use? Do the bees swarm worse than they used to?

Port Orange, Fla. **JOHN B. CASE.**

Friend C., if the metal is properly perforated it will keep the queens from the surplus apartment. It is a success, we think, and this seems to be attested by the fact that those who use a little of it for experimental purposes generally order considerable of it afterward. Its use, however, is not absolutely essential. Many of our successful honey-producers do not use it, and still many others think they can not dispense with it. Bees do not swarm worse than they used to, unless the bee-keeper so manipulates his colonies as to force them to do it. Contraction, especially if carried to an immoderate extent, has a tendency toward inducing swarming. Giving the queen access to all parts of the hive has a tendency likewise to discourage it. The use of perforated zinc to confine the queen to a small brood-nest, one that has been contracted to ⅔ or ⅓ its former capacity, would favor and no doubt does promote swarming.

GRANULATED-SUGAR SYRUP VERSUS HONEY FOR FEED.

Let me know the price of the cheapest honey for feed for my bees. They need feeding. I don't think my bees made 5 lbs. per colony since July, and they look weak. **JOHN A. HEIDLER.**

Wetheredsville, Md.

Honey this year, even of a poor grade, will be too expensive to feed bees. Granulated-sugar syrup is about as cheap as any food you can give them; and it certainly is the very best. The syrup will cost you about 6 cts. per lb. It is doubtful if you can get even fair honey for this price, suitable for feeding.

SOMETHING FROM OUR OLD FRIEND E. GALLUP, IN REGARD TO THE LARGE YIELDS OF CALIFORNIA.

Mrs. J. Hilton tells us, in the Nov. GLEANINGS, of her trip to California, and of the Russell Brothers' 7 tons of honey. Orange is 3 miles from Santa Ana, and why not call on E. Gallup and others while she was so near? Our season here was not considered first class, yet I will report some of the yields in this vicinity. Mr. Fox had 15 tons; Mr. Miller, 15 tons; Mr. Joplin, 12 tons; Mr. Odlin, 18 tons; and at the Hot Springs Apiary they made 20 tons. It sold immediately at 100 dollars per ton, or 5 cents per lb., wholesale. It is now worth 6½ to 7 cents wholesale. I believe these bee-keepers above named had from 200 to 270 colonies to the apiary. How does that compare with your eastern apiaries? Of course, we do not use any harness, or have any trouble about our bee-cellars, etc. **E. GALLUP.**

Santa Ana, Cal.

REPORTS ENCOURAGING.

A BEGINNER'S SUCCESS.

I BOUGHT one colony of bees in the spring of 1886. That summer they swarmed three times, and in the fall I bought one more colony. I wintered the four with no loss. In 1887 they increased to twelve, and I wintered them with no loss. Up to this time I had been working for increase. This summer I thought I should like to have some honey, so I wrote to you for W. Z. Hutchinson's book on the production of comb honey. I followed the plans laid down by him, and Heddon's method for preventing after-swarms, and I succeeded in getting 600 lbs. of comb honey—562 lbs. in 1-lb. sections, and 38 lbs. in 2-lb. sections. I increased to 23. I sold three colonies. Two were queenless, three would not enter the supers, so I got all of my honey from 16 hives. One colony gave me 70 lbs. in 1-lb. sections.

This has been a very poor season. I have followed the instructions in your A B C book, and am trying to go slow, and grow up with the business. My bees are all in good condition, and have plenty to winter on. **JOSEPH B. GRUBB.**

Ankenytown, Ohio, Nov. 16, 1888.

2100 LBS. FROM 23 COLONIES, SPRING COUNT.

My report for 1888 is 23 colonies, spring count. I took 600 lbs. of extracted and 1500 of comb in 4¼x4¼ sections. Seven months of the time I was away from home from daylight till dark. Not more than three weeks was spent in the apiary. Bees are working every day, but no surplus. Extracted I sold for 9 cents; comb, 12½. S. C. CORWIN.

Sarasota, Fla., Nov. 16, 1888.

REPORT OF 1888.

Spring count, 39 colonies; fall count, 50. Extracted, 2400 lbs. of honey. Comb, 100 lbs. Honey all sold.

St. Marys, Ohio. JOS. BARRINGTON.

BEES DOING WELL.

Bees did very well this year. I got 2500 lbs. of section honey, and 200 gallons extracted. I have 75 stands in the cellar, doing well. J. R. WHIPPS.

Le Sueur Center, Minn.

BEES AND BUCKWHEAT; FROM 7 TO 12, AND 300 POUNDS OF HONEY.

From 7 hives, spring count, I increased to 12, and obtained about 300 pounds of honey, nearly all in 1-pound sections, of which I sold $41.00 worth, besides giving some to friends and using a lot in the family. My report of Japanese buckwheat is 28¾ bushels from ½ bushel. I bought it of you in July. Bees have done well for the care bestowed on them. All the time I could give them was about half a day each week. They are all in good condition for winter. SAMUEL S. SAUMENIG.

Ivory, Md., Nov. 19, 1888.

ROOT'S CHAFF HIVE AND 5028 LBS. OF HONEY.

I began the season with 91 colonies. Nine of those were in old box hives. The spring was very cold. No honey was gathered from apple-blossoms. I put on surplus boxes on the first of June, up to the 8th, when the bees had hardly gone to work. I did not look at them again until about July 6th. They had done very well, and about the last of July I took off 2000 pounds of the nicest honey I ever had; and up to about the first of October I had taken 875 pounds of extracted and 4153 pounds of comb honey. I have every pound of my honey sold, both comb and extracted, and there are calls for more almost every day. I never saw so much white clover, but I saw only fifteen bees on it this year. I increased to 115 colonies. There are none but A. I. Root's chaff hives in my apiary now, so the campaign is over. Hurrah once more for A. I. Root's chaff hive and 5028 pounds of honey!

FRED BRITENBAKER.

Honesdale, Pa., Nov. 16, 1888.

REPORTS DISCOURAGING.

NO FALL HONEY; BEES SHORT OF STORES.

MY report for the latter part of the season, for the eastern part of Pennsylvania, is as follows: There was too much rain from September to date; no fall honey; bees short of stores. I had to feed nearly all colonies with sugar syrup to winter on. All are well stocked with bees. Blacks are away behind the Italians. Those that I have not fed up will meet with great losses. All my bees are packed for winter. I am selling honey in 1-lb. sections at 25 cents per section, ready sale. Others are selling from 18 to 25 cents; extracted, from 8 to 20 cents per lb. JOSIAH EASTBURN.

Fallsington, Pa., Dec. 7, 1888.

JUVENILE DEPARTMENT.

Every boy or girl, under 15 years of age, who writes a letter for this department, CONTAINING SOME VALUABLE FACT, NOT GENERALLY KNOWN, ON BEES OR OTHER MATTERS, will receive one of David Cook's excellent five-cent Sunday-school books. Many of these books contain the same matter that you find in Sunday-school books costing from $1.00 to $1.50. If you have had one or more books, give us the names that we may not send the same twice. We have now in stock six different books, as follows; viz.: Sheer Off, Silver Keys, The Giant-Killer; or, The Roby Family, Rescued from Egypt, Pilgrim's Progress, and Ten Nights in a Bar-Room. We have also Our Homes, Part I., and Our Homes, Part II. Besides the above books, you may have a photograph of our old house apiary, and a photograph of our own apiary, both taken a great many years ago. In the former is a picture of Novice, Blue Eyes, and Caddy, and a glimpse of Ernest. We have also some pretty little colored pictures of birds, fruits, flowers, etc., suitable for framing. You can have your choice of any one of the above pictures or books for every letter that gives us some valuable piece of information.

WHAT'S the matter with you, young folks? We have only a few letters to print this time, and, for that matter, for the last two or three times. Are you getting tired of writing? Surely you haven't told all you know about bees! Perhaps it is for the want of a seasonable and suitable subject to write about. Well, let's see. Suppose you tell us how your papa winters his bees; whether on summer stands in chaff, or in the cellar. If in the latter, when did he put them there? how did he carry them in (see Miller's article elsewhere), and how wide an entrance does he leave to each? Also how many colonies has he in the cellar? etc. Now, let's see if we can't have more letters the next time. If you don't care for any of the presents enumerated in the fine print above, select some mailable article from our 5-cent counter, in our price list, which we will send on application.

THE FIRST POLLEN.

I have been watching my pa's bees to see when they brought in the first pollen; and the first that I saw them bring in was on April 14th. I hunted around to see where they got it, and found them gathering it from our soft-maple trees. The pollen was of a whitish color. Some of our soft maples blossomed out before either the poplars or pussy willows, which pa says doesn't often happen.

Williamstown, Ia. JOE GEORGE.

PA'S ENTRANCE-BOARD.

There are several bee-keepers around here, and they go plodding along in the old style. I have been trying to get some of them to take GLEANINGS, but have not succeeded yet. Pa had bees only three years, and we have only 18 stands. We use only the American hive. He has made several improvements on it. Instead of having a stick with notches cut in it for the entrance, pa has a board that fits across the portico, and six inches wide. A slot is cut one inch long in the center; a thumb-screw is put through, and screwed into the hive. The entrance can then be adjusted to any size.

Mooresburg, Pa. SAMUEL BOWER.

My pa has 28 old colonies of bees, also 4 new swarms. Last season he had 50 stands, and he lost 22 stands last winter. He has a stand of Syrian bees. I do not like to work with bees. We did not get much honey last season, but are getting some this spring. We have one of your Novice honey-extractors, and like it very much. I have no brother or sister. EDGAR DUKES.

Browns, Ill., May 16, 1888.

HONEY SEASON SO POOR THAT BUCKWHEAT HONEY SOLD FOR 20 CTS.

I was very much pleased with the book, Sheer Off, which you sent me. The last honey season here was so poor that buckwheat honey sold for 18 and 20 cents a pound. My brother Stanley was stung last summer on the eye, and it affected him very badly, coming out in great blotches. About a month afterward he was stung by a bumble-bee on the foot, and his eye swelled up as bad as ever. Some people will not believe it, but it is true all the same.

Ingersoll, Ont., Canada. ETHEL EDWARDS.

PA'S CELL-HATCHER, ETC.

My pa has 34 stands of bees. He made a small hive out of ½-inch lumber, for hiving swarms. He takes the hive and holds it under the swarm and shakes the bees in it. Then after the bees are quiet he takes the frames out of the little hive and puts them in the big chaff hives. As our yard is full of trees and bushes we have had no trouble in getting the bees when they cluster, for they always cluster in the yard.

Pa got an Italian queen of you two years ago, and he wanted to Italianize all of his bees that fall. He had ten colonies at that time, so he took ten capped queen-cells from her hive and put them in a cage that he made. This he made as follows:

He took some thin strips of lumber one inch wide, and made a frame 12 inches long and 3 inches wide, then made 10 divisions in it like little rooms, then covered it with wire screening. He bored a hole in the outside frame of each little room. He then put the queen-cells in, then he plugged the holes up and placed the cage between two combs of bees. The queens all hatched out, and were nice and yellow. Pa put one in each one of his hives.

Pa's bee-hat has a piece of wire screening all around it, about 4 inches wide, then he has mosquito netting from that to go down around his neck.

Rocky Ridge, O., July 13, 1888. ANNIE SLIGER.

Your papa's arrangement for hatching queens is very similar to one described in the A B C of Bee Culture. Neighbor H. (he's that big Uncle Hen, you know) uses them in his queen-rearing apiaries, and likes them better than queen-nurseries. Henry Alley, the editor of the *Apiculturist*, and a queen-breeder, also uses something similar.

J. M. JENKINS TELLS THE BOYS AND GIRLS SOMETHING ABOUT SUGAR-CANE.

Dear Huber:—I send you by express some sugar-cane. This is what nearly all of the sugar and syrup we all use is made of. It grows with great long blades like corn, but they are much tougher, and have rough saw-like edges that will cut our hands if it strikes the wrong way. About frost the men strip these blades off while it is standing (usually with a thin paddle in each hand, so as to strike down on both sides of the stalk), then cut it down with a hoe just above the ground. Then the stalks (after being topped also) are run through a "cane-mill," which is made with two or more big iron rollers, and this squeezes the juice out. The juice is then put into a big kettle, or "evaporator," and boiled for hours, to make syrup or sugar. In Alabama it is grown mostly for syrup; but in Louisiana they make lots of sugar. You will see in this lot one stalk of solid green. That is softest, and best on that account, for chewing. Then the striped variety, called "ribbon" cane, is next softest, and the solid "red" is most used in this vicinity for making syrup. It is the hardest of all; but the farmers say it is more concentrated, requires less boiling, and yields more syrup than the ribbon or green cane. But I think the ribbon cane much the prettiest; don't you? All the little folks (and big ones too) love to chew sugar-cane, and every fall you can see lots of folks everywhere, nearly, peeling and chewing sugar-cane. I hope you will like it. Your friend,

Wetumpka, Ala., Nov. 15, 1888. J. M. JENKINS.

As will be seen, the letter above was addressed to Master Huber. As it contains facts of interest in regard to sugar-cane, we thought there might be other boys and girls of Huber's age who would like to know about it in these Northern States. The sugar-cane was very nice, and was appreciated by Huber and all the family.

PAPA, COME HOME.

BY EUGENE SECOR.

As homeward I turn at the close of the day,
Weary from toil, above measure;
Who sees, and runs to meet me half way,
But my blue-eyed darling treasure,
Saying in baby language, true,
"Papa, come home, I love you"?

Her playthings are scattered whenever I come,
Whether at night or at nooning;
With outstretched arms she welcomes me home,
And softens my heart with her crooning,
Saying, as only babies can do,
"Papa, come home, I love you."

And when the evening prayers are said,
And the good-night kisses given,
When baby is tucked in her little bed,
And her keeping left to heaven,
She says, as she twines my neck anew,
"Papa, stay home, I love you."

Sweet innocence, pure as the heaven above!
A seraph art thou from glory,
Sent to win us with unselfish love,
From sordid gain so transitory.
Oh! how can my heart, after such lucre roam,
When so softly thou sayest, "Dear papa, stay home"?

Methinks that I see thy sweet sister once more,
Whom the Father took home one evening;
Methinks she is happy on yonder shore,
And wonders why I am grieving.
Perhaps, when I'm weary of life, she'll come
To meet me and greet me with, "Papa, come home."

Forest City, Iowa.

MYSELF AND MY NEIGHBORS.

AND WHAT I FOUND SOME OF THEM DOING IN CALIFORNIA.

How amiable are thy tabernacles, O Lord! My soul longeth, yea, even fainteth, for the courts of the Lord.—Ps. 84: 1, 2.

SATURDAY night it was raining hard when I reached Los Angeles; and the train mentioned in the letter at the close of Our Homes, Dec. 15th issue, had been gone some time. Trains run here Sunday; but, how about traveling on the Sabbath? At one time I decided to stay at a hotel, and go to church; but the hotels, at least all I could find there, had a great liquor-bar as the most prominent feature, and charged $3.00 per day besides. Should I stay here among entire strangers who cared nothing for me, while friends were waiting whom I could find by a very few miles of travel? I knelt down in my sleeping-room, and asked the Savior to guide me; and at once I felt his peace in my heart as I decided on my course. At the little narrow-gauge depot the crowd seemed all ungodly; but I soon found a young man who was a Christian. He attended school in the city, but always went out to see his parents Sunday morning. He seemed as glad as I was, to meet somebody who loved to keep the Sabbath day holy. He told me of a little Methodist church at the terminus of the trip, and said Sunday-school would open there a little after our arrival. How my heart bounded at the thought of a Sunday-school in the country! He said he thought friend Woodberry didn't go to church very much, but I decided to take him with me to that Sunday-school, if I found him; if not, to go myself, and hunt up my friend afterward. Well, we both went, and it was a real good old-fashioned Methodist Sunday-school. The little church was about full; and when the superintendent asked the "stranger" to speak, I thought of my prayer of the morning. As I closed my talk, the kindly looks and smiling faces made me feel that the cause of Christ was dear to many a heart away off here amid the mountains. At the preaching service I was pleased to see the little locomotive on this narrow-gauge road bring a car full of people to meeting, and carry them home again when it was out. This road is a special convenience here, for it winds around the mountains, passing the homes located in the villages. The fare for 7 miles and back is only 30 cents; but even at the low price of 2 cents per mile it has paid expenses, and more, right along from the start. Now, friends, we need charity, and to take good heed before we decide hastily that *all* Sunday travel is an evil.

Friend Woodberry is, at present, keeping bachelor's hall; and although he says he isn't a professing Christian, I judge, from the snatches of Gospel Hymns he is using now while he washes the breakfast dishes, that he isn't far off from the kingdom. Like friend Hilton, of Michigan, he probably expected, when he invited me to be his guest, that he would get talked to on the *claims of Christ* as well as on bee culture and gardening, and I have labored with him faithfully and *soundly*. We two are brothers henceforth, and, I trust and pray, brothers in Christ. Now, before I bid adieu to that Methodist church I want to find a little fault. During the Sunday-school, the doors and windows were wide open; but in the evening, while the air outside was *exquisitely perfumed* with the semi-tropical vegetation, they had the doors shut and most of the windows too, until everybody was sweating, and the air so impure it made me dozy and miserable. Such air extinguished pretty nearly all my Christianity; and just when I was so anxious that brother W., at my side, should think favorably of going to meeting, I fear he was deciding he would never go again, just on account of the bad air. Perhaps I am peculiar—at least, I hope so; but such air is *poison* to me. It makes me "sort of crazy." I do believe the greatest cause of consumption is crowded rooms and no ventilation. I hated to go to church when I was a boy, on account of the bad air, and I should hate it as badly now if I had to endure air like that last night. Should I have called for more air? Well, I thought of it, but it didn't seem just the thing for a stranger to do.

Bee-keepers are, as a rule, men of genius, and friend Woodberry is not an exception. Four years ago he came here with his mother, from Maine. He gave $1000 for 20 acres of land, and now he has been offered 15,000 for it. The secret of it is, however, his skill and energy. He seldom hires any help, as it is so expensive. His apiary, of about 75 hives, is on the railroad plan. The hives are in one long row winding around a hill. As the combs are lifted from the hives to extract, they are set in a box placed on a car. This box holds about 150 combs, and, when loaded, is run into the honey-house to extract. The honey-house being on the hillside, a sort of "cellar kitchen," as it were, is used for storing the filled cans of honey—the honey from the extractor running into the room below, to be canned for shipment.

Friend W. strongly seconds the idea that the average bee-keeper should have some other business. He has turkeys and chickens, Jersey cow, one horse, and his garden. Strawberries are his hobby, and just now his vines are full of beautiful fruit, some of it over-ripe. He has a peculiar knack of making his berries bear all summer long—that is, with the aid of irrigation. He gets 15 cents per quart, wholesale, now. and has, during the summer, sold toward $1000 worth of berries from his patch of 1½ acres.

The plan of irrigation is to have a large pipe of sheet iron, laid on a dead level, along the highest side of the patch. Small holes are made in this, opposite each row; and when the water is let on, the whole patch is irrigated alike. When dry enough he runs the cultivator through, and this is kept up all summer, letting the water on, as a rule, about once a week. He uses a cultivator that leaves a ridge in the middle, and a shallow furrow close to the strawberry-plants, the rows being 4½ feet apart. The variety is Monarch of the West. The rain of last week has made the ground too soft to pick berries, and friend W. says that, for the strawberries, he would almost rather not have any rain. The water comes from springs on the mountain-sides, and is stored in large reservoirs, or circular cisterns, made of clay. For the use of towns the reservoirs are made of hewn stone and cement. He also raises sweet corn, alfalfa, and barley, by irrigation. The "hay" of California is barley cut just when it begins to head.

While great sums are made here by careful, thorough men, a slipshod farmer or gardener would soon run out. A little neglect in irrigation, and your strawberries, corn, aye, and even orange-trees, are "gone dead." The farmers who have to mow the weeds before they can dig their potatoes, should never come to California. While friend W.'s mother has been absent this summer, he has done all the housework and cooking, besides caring for his 20 acres of crops. As it took considerable time to churn his butter, he whittled out a little windmill to do his churning, and it did not cost, probably, a dollar, all told. The cream is put into a square wooden box that can be slipped on to the projecting end of the shaft, and that is all there is to it. He wanted to dig a well; but as no one was near to empty the bucket, and as he couldn't afford to hire, on the principle that "necessity is the mother of invention" he rigged an apparatus that takes the pail, lifts it over to one side, dumps it where none of the stones could fall back into the well on his head. All alone on his ranch, he blasted right down into the rock for over 20 feet, when I was there.

From Los Angeles to San Diego we have some beautiful mountain scenery. Mt. Baldy, with its summit white with snow, was visible from the car window, from 9 until 12 o'clock, fast running. A great part of the route is along the coast, with the ocean on one side and cliffs on the other. The same work of the elements, such as I have described, presents a queer rocky formation that I call "sponge rock." The rain has cut the mountain cliff into a shape almost like an immense sponge. All along the route we have constant evidences of the speculation and craze in real estate. For miles along the track, towns and villages have been laid out with painted stakes, and in some cases the streets are graded and trees planted before a house is built. The railroad company has built beautiful station houses, but the architecture is rather fanciful and showy. In San Diego, as well as in many other localities, the people have been so wild with excitement that they can't come down to any kind of work, but stand about the streets and swap and trade all day long, while the Chinese do pretty much all the work that is done. In this wonderful climate of perpetual summer, many have really come to want—yes, when prices are enormous for crops that can be planted any day in the year. For instance, eggs are 45 cts. per dozen, and yet a hen will hatch chickens every month in the year, safely. Strawberries are 25 cts. per quart, when, as I have told you, they are ripening now, and may be *set out now;* yet the only person I saw setting out strawberries was a woman, and she was at the same time obliged to take care of the baby, who was constantly by to pull them up as fast as planted. My younger brother has just bought a very pretty lot near the motor railway, but it cost him $1000 for one-fifth of an acre. The motor makes him only 10 minutes from the heart of the city of San Diego, and water for irrigating his one-fifth acre is free. As little can be raised without water, in the summer time, water is a part of the real-estate craze; and to this end this is a country of windmills. An orange-orchard loaded with California oranges is one of the prettiest sights I ever saw in my life; and as other folks think as I do, orange-groves are a very essential part of the estate craze. Get you a lot, plant the trees, put up a windmill, and irrigate thoroughly, and when you get a crop of oranges you can get a big price for your improvements. If you don't sell your land you can get $10.00 for the oranges on a single good tree. Good oranges bring 50 cts. per dozen here, just as they do at home. So you see you can do first rate here, if you love hard work, and especially if you have the faculty of setting yourself at work; but you can't do well otherwise. Great numbers are out of employment; but, at the same time, the Chinese do splendidly making garden, and doing general labor. They irrigate the orange-trees by making a ridge of dirt around the tree a little further away than the outer branches reach, and filling this with water. This basin needs filling about once a month, and a tree in full bearing needs about 4 barrels of water at each watering. You need to figure for about 50 barrels per year, for each tree. Garden stuff is also irrigated, setting the plants in the bottom of a shallow furrow, closing the ends of the furrow so it will hold water, then fill each furrow with water, and let it soak into the ground. I asked a Chinaman how often he put on the water. "One water, one week," he replied, meaning that, on the average, in summer time, they gave water once a week. One man was gathering a vegetable like our Swiss chard, only the thick leaf-stalks were as white as celery. When I questioned him about it he explained, "Chinaman much likee," meaning that it was used principally by the Chinese. He was quite curious, and expressed much astonishment when I told him I made garden over 2000 miles away. One reason why the Chinese keep right on with their gardening is, that they are never affected in the least by the great craze and excitement in real estate. They will at times pay $100 an acre rent for desirable ground near the city, but they never own land. In National City, almost every business house of any description reads, just below the sign, "Also broker in real estate." Lots that my eldest brother bought less than 8 years ago for $375 are now worth $50,000. When they got up to $3500 he sold out. For a year past, however, *most* of the real estate has been going down; and thousands of people who bought, as they thought, wisely, paying half down to secure the bargain, have abandoned their claims and lost all they put in.

On the public square at San Diego I saw a species of banana-plant with leaves at least 12 feet long. It grew right out of the native soil, without any manure or fertilizer.

Nov. 24.—Opposite my brother's is a fruit-orchard of 10 acres. It is principally orange-trees in full bearing, and for this 10 acres the owner recently refused $25,000. We are about midway between San Diego and National City, perhaps 2 miles from each place, but the motor cars go close by us, and water is found in plenty, only about 15 or 20 feet deep, so that windmills raise plenty of water for irrigation. Two 10-foot mills on the 10 acres mentioned supply the water. One of the wells is 28 feet deep and 16 feet square. This well has never failed. Iron pipe carries the water below the surface (low enough to avoid the plow), to hydrants, frequent enough so that a hose will reach every tree. Orange-trees not only require water once a month, but they must have the ground stirred often. The little circular dams around the trees are not made until May or June; but after these are made, the harrow is run constantly clear up to the dams. These dams are from 5 to 8 feet away from the body of the tree, according to the size. The hose used for irrigating is 50 feet long, so that the hydrants are about 100 feet. I saw boys moving the hose and filling the dams around the trees, and they seemed to rather enjoy the work. Land suitable for orange-growing costs about $500 per acre. A few oranges may be gathered in two or three years, but it will take 10 or 15 years' growth to get a full crop. Oranges retail at about the same here they do in Ohio; viz., 15 to 20 cts. a dozen for small ones, and 30, 40, and 50 cts. a dozen for large ones—not less than 50 cts. for choice. With the thousands of acres of orange-orchards, the demand still keeps up with the supply.

Across the street from my brother's is a pretty garden where all kinds of fruit and flowers are seen, and yet the family live in a tent, and lived there all last winter. They propose to use it again this winter. In this garden are what they call here strawberry guavas. They are the size of a plum, with color and taste much like a strawberry. They grow on a shrub about like a tomato-vine, but are hard wood. I am told guavas succeed well only on limited areas. The fruit is delicious, and brings 15 cts. a pound, same price as strawberries.

Although we have here a perpetual spring, and can plant crops and make gardens every month in the year, every thing brings good prices, and it is in many respects an expensive place to live. Coal is sold in sacks at the groceries, for 75 cts. per 100; kerosene, 40 cts. per gallon; milk, 10 cts. per quart. One is tempted to start a grocery store, and, in fact, any kind of a store, until he inquires the price of rent. A little room, with, say, 10 feet front, and running back only 12 or 15 feet, on a business street, costs $40.00 per month. If you try to buy a location on which to build a store, the price will scare you. Then why not start a grocery store in the suburbs? There are already hundreds of them, and often clear away from any houses. To get trade, they go around daily and solicit orders; and thus it is that you can get every thing at your door, no matter where you live.

At present there is not the activity in San Diego of an eastern city of the same size. The greater part of the people are apparently standing around, waiting for some chance to trade and dicker. Very few are seen hard at work, and I do believe the climate has something to do with it. It needs the frost and snow to make one feel like making things fly.

Water for irrigating is the great topic of business. Nothing is said about manure or fertilizers of any kind, and, in fact, they nearly all claim that it is not wanted; but immense works are being put up to store up the water. Near my eldest brother's farm is what is called Sweet Water Dam, a piece of masonry between two mountains, 40 feet at the base, 20 feet at the top, and 90 feet high. This dam forms a beautiful lake of clear pure water. An immense aqueduct, large enough for a man to go inside, carries water to National City and irrigates miles of gardens. Scientific men had a theory that, under the dry gravel bed of Sweet Water River, there flowed on the surface of the rock a subterranean stream, and that, if a dam were made of water-proof cement, laid right on the rock, it would fill up with water. Many were the jeers from the opposers, when the dam was started; but the beautiful lake attests the success of it. The cement alone, used in the building of the dam, cost $100,000, and the structure is a credit to the age in which we live. If vast corporations, and even great trust companies, are needed for such great enterprises, for the development of the resources of our nation, may God be praised for these corporations!

I went with my brother on a buggy-ride of about 15 miles into the mountains, to a place called El Cajon (pronounced *El Cahoan*), and saw an immense flume, or canal, constructed of plank, to carry water to San Diego. This flume runs along the side of the mountain, so as to keep on a level, with a slight descent, for over *40 miles.* The pure spring water, as it winds like a babbling brook in its box of boards around the hills, and across an occasional span on trestle-work, is one of the prettiest and grandest sights I have ever seen. At intervals the water pours down a foot or two over a board set across the flume, to stop the sediment, and to keep the water clear from sand and settlings. At El Cajon we got an excellent dinner for 25 cts. We had nice soup, three large slices of roast beef, with all kinds of vegetables, and a generous slice of mince pie to finish off with. The mince pie was sopping with strong brandy—too strong for me to eat. I am told 25 cts. is the usual price per meal, except at the railroad eating-hours. I for one protest against charging 75 cts. for a meal of victuals. I feel guilty whenever I pay it. The regular price for feeding a horse is 50 cts., and yet horse feed grows in great plenty every month in the year. House-flies are extremely plentiful here, especially in the winter; but I have not seen a fly of any kind about the horses, and I am told flies rarely trouble them at any season. I have made some garden for my elder brother, on the mountain, and yesterday we plowed for my younger brother one-fifth of an acre for strawberries, but we couldn't get any plants until to-day, and now it rains. Before the rain, however, I planted lettuce, radishes, and beets. I know they will grow, for barley is springing up everywhere. It is strange, how thoroughly barley is seeded all over the country. It is almost the only thing they use for hay; and, even though cut green, the grain is ripe enough to germinate. The seed rattles out of the loads of hay, grows quickly as a weed, bears enormous crops, often 100 kernels to the head; in turn this seeds the land, and so on. Horses and cattle nibble it with avidity when only an inch high, and so it is of immense value on the pasture lots.

Nov. 24.—To-day my brother mentioned that a good meal, including coffee, could be had in San Diego for only 15 cts. I was so slow to believe it that we sallied out, just before dinner time, to test it. He called for a couple of ribs of beef, *Spanish*. They brought each of us a rib of beef, with more meat on it than a hungry man could eat, on a large oblong plate. In fact, I should call it a good plate of meat for a small family. Well, with this was a large dish of mashed potatoes, another of spinach, and more bread and butter than we could both eat. The beef was roasted with tomatoes and red pepper, stewed down. Now, the entire charge for the beef, tomatoes, potato, spinach, bread and butter (nice butter too), was only *ten* cents. We got this at the Dairy restaurant; and when I declared that it could not be furnished so as to pay, brother assured me he had had meals there for over two weeks, and they were just as good and just as cheap, right along. He says other restaurants have the same bill of fare, and make it pay. The Dairy feeds perhaps 500 people a day. Contrast the above with 75 cts. a meal, will you? The dairy gave us a neat table, and the waiters are all white people, neither negroes nor Chinese. After dinner we visited the great Del Coronado Hotel, that covers 7¼ acres, and is said to be the largest hotel in the world. It is a magnificent and wonderful edifice, but I was more pleased with the beautiful walks, lawns, and flowers surrounding it than with the building itself. The guide-books of travel have much to say in regard to the wonderful and magnificent hotels of California; but when I learn that it costs $3.00 or $4.00 a day to live at such places, the very sight of them is painful to me. I shall always feel guilty, no matter how rich I am, to pay as much for my board and lodgings as two or three average day laborers can earn. I can take off my hat, in token of reverence and respect, to the company of men who built the Sweet Water dam or the 40-mile San Diego flume. I am proud of humanity when I contemplate their work; but I have no such feeling when I view the great hotels.

On one side of the Coronado House the wild waves of old ocean were roaring and pounding; and if they always roar and splash and foam as they did to-day, I never knew it, that is all.

To Huber.—After papa saw the great waves of the Pacific Ocean tumble and roll, almost as high as the housetops, he visited the ostrich farm, where a dozen great birds were penned up in a field. They were tall enough to eat from the eaves of a tolerable house, and they can kick with their heels almost as hard as a horse. They can beat any horse running; and when they snap their jaws at a beet or carrot, you feel pretty glad that they are over the fence, where they can't get you. One of the young ones was in a pen, sick; the others had kicked him and made him lame. Their eggs are as large as a small pumpkin, and it takes six weeks to hatch them. The hen bird lays about 20 eggs, and then both birds take turns sitting on them. An ostrich is worth more than a good horse. One nice feather from an ostrich is worth from $2.00 to $5.00. The keeper went in the flock with a great pole and "shooed" them as he would a lot of turkeys. The young ones all ran before him; but the old papa ostrich turned after him with a kind of bellowing noise and made him run, I tell you. After he had chased him out of the field he whirled and kicked at him as spiteful as you ever saw Meg kick. He will fight as spunky as a Bantam rooster, even if he is taller than a horse, and has legs and feet almost as heavy.

Nov. 26.—To my Sunday-school class. Boys, when you are away from home be sure that, before Sunday comes, you have found a place to go to church, and don't fail to be up and ready for all the Sabbath services. My brother has been located in this neighborhood a couple of weeks, but they had not yet got around to looking up the places of worship. On Saturday evening it occurred to me we had not yet attended to the matter, so I started out with Roy, a bright boy of 14, who said he knew pretty nearly where the church was. When in the vicinity I stepped into a store, where I had done some trading, to make inquiries. This store had a more respectable appearance than its neighbors, and no liquors or tobacco was prominently paraded. The proprietor was a Christian, sure enough, and at once introduced me to several of his customers and neighbors. In a few moments one of them had volunteered to go with us if we would call round at 10 o'clock next morning. We were on hand, and on the way we passed some groceries, stores, and meat-markets, that were open on Sunday. How differently the owners looked, and their places of business, from the church-goers! They were dirty, untidy, and unhappy looking. Those who had closed their stores looked bright, clean, and happy, and their places of business, neatly closed up (for they had been made tidy the night before), showed in sharp contrast to the others. There are some who say there is no Sunday here in California; but I am glad to be able to say it isn't so. On the church steps we met the pastor, Rev. F. B. Perkins, formerly of Massachusetts, and he gave us a warm welcome, and took my brother's address, that he might call during the week. The little Congregational church is new and rather plain, but very homelike and pretty inside. As we stood on the steps before the service opened, the brother who came with us said, "Two years ago I could see only 8 houses from where I now stand." Since then hundreds of dwellings have been built, and many stores and groceries; this church has been put up within a year, and the attendance pretty well filled it. After church was Sunday-school; and the sight of the children, gathering from the many humble homes, was inspiring. In an arch over the pulpit, in beautiful letters of bright blue paper, were the words, "Praise ye the Lord." On a little blackboard, at one side of the pulpit, the pastor gave the text and the hymns to be sung at opening as well as the closing of the services.

The Sunday-school is after the services, as it is at home, and they also have an evening prayer-meeting, just as we do. It really seemed like home when the pastor said they would all be glad to have a word from "brother Root." I told them briefly of how glad I was to meet, in God's holy place, those who love the Lord, and something of our young people's prayer-meeting, and the Endeavor society in Medina; and when the service was over, quite a good many crowded around us to shake hands and give words of encouragement. The pastor, during the evening discourse, spoke of the hardening process of sin, and closed with the parable to the effect that, even if one arose from the dead to warn the sinner, he would not do any different. As the day closed I felt happy. The Christ Jesus, who has lifted me and cheered, in years gone by, I found here in California. Had I allowed circumstances to prevent attendance at church, how differently I should have felt, and how poorly prepared for the duties of the week, when Monday morning came! Truly, I can say with the Psalmist,—

> How amiable are thy tabernacles, O Lord! My soul longeth, yea, even fainteth, for the courts of the Lord Ps. 84:1, 2.

Nov. 27.—I want to say a few more words about the motor cars. It seems to me these have almost solved the problem of using steam on common roads. They run on an ordinary railway track, but the track runs up and down hill, and turns short curves that we never see on the ordinary railways. The cars are, part of them, open, for those who prefer to be outdoors, and one can step off so easily that the conductor needs only to slack up, and then off we skip again at 20 or even 30 miles an hour. The track runs off between the hills, and round to every little group of houses; and the stations, which are, many of them, only a small plank platform, are often only a few rods apart. Both numbers and names are used to designate them. The one where I am now sitting as I write is nearest my brother's, and is called Chollas Valley, but is pronounced "Choway Valley." The names of places are almost all Mexican (Spanish) names, and are pronounced almost any way but as they are spelled. The town of *Tia Juana*, on the line between California and Mexico, is pronounced "*Tee-ah Wahnah.*" *San Jose*[*] is pronounced here San Ho*say*. A few American names are used, such as Sunnyside, Sweet Water, etc.

I never took a ride in boat or carriage, or anywhere else, so exhilarating and invigorating as these rides on the open motors. The people have had the good sense to coin an easy short word for this cheap and rapid means of transportation; viz., "motor." "Take the motor at 9:45," or any other hour, is a common expression; and, indeed, without the motors I hardly see how the people here, hemmed in by mountains, could live and get their produce to market without them.

I have just returned from a visit to one of J. S. Harbison's bee and fruit ranches. It is about 8 or 10 miles from San Diego, at the further extremity of what is called the "Old Mission Valley." As it is out of season for the bees, there was not much to see about them. The Harbison hive is a tall hive, and not much on the plan of those used in the Eastern States. All the honey I have found in California is in the Harbison section, holding 2 lbs. or more. The fruit-garden took my attention at once. Mr. H. was just sinking an immense circular crib, 30 feet across, as a reservoir for water for irrigation. A steam-engine was turning a centrifugal pump that sent out a small river of water, while a dozen men shoveled out the sand so as to let the crib down as low as wanted. He does all his irrigating with this engine, and does not have any *elevated* reservoir at all.

He was digging some beautiful White Plume celery when I found him, and right back of the celery were the finest rows of strawberries I ever saw. Back of the strawberries was a peach-orchard of trees that have borne some peaches this season, only the second year from the seed. They were not budded. Wonderful growths of all kinds of fruit-trees, including lemon and orange, were also seen. Gregg raspberries had also made a wonderful growth, and had borne a fine crop. A crop of melons had been marketed in June, but the ground was still covered with melons which proved to be about the finest I ever ate. Our host kindly filled our buggy when we started away. There are several kinds of fruit that are said not to do well in California, but friend H. manages to succeed with nearly all of them. He is, however, back about a dozen miles from the coast, so the winters are a little more frosty. In his neighborhood they give the orange-trees a little protection. Mr. Harbison has the credit of first bringing the Italian bees to this coast, and he informs me that he at one time had as many as 3500 colonies, being the largest bee-owner in the world. With the vast amount of property he now owns, it is not strange that he finds little time to attend to bees or much else personally. He has a beautiful dwelling and a wholesale fruit-house in the city of San Diego, besides more farms and bee and fruit ranches than I can remember.

[*] The Spanish J is pronounced like our *h* in *hat*.

Nov. 27.—San Diego is said to have the finest harbor in the world, and one large enough to shelter safely the entire shipping of the world. It is nature's work, and no dredging or embankments have been needed. From the city we look over across the bay and see a narrow strip of land, like a thin streak of sand, that entirely encircles and cuts off the bay from the ocean. One would think, to see it in the distance, that it was scarcely out of the water enough for a foot-path; but the fact is, it is wide enough and high enough so the motor cars go clear around it. Jennie (brother's wife) and I made the trip one day. The conductor kindly pointed out a salt-works where salt is made from sea-water. It has been in operation for 16 years. In the summer, when there is no rain, water is let into a level field with raised sides, to the depth of a few inches. After a week or two it is let into a second smaller field, then to another still smaller, just as we boil down syrup, until it is strong enough to form crystals. At this stage it is soon covered with a film of salt, not unlike ice on a pond, and, when properly managed, the salt will be a couple of inches thick. Now, sea-water contains other salts besides common salt; but the latter always crystallizes in regular cubes; and by taking advantage of this fact it is obtained from the ocean perfectly pure. The crystals are raked off, and the residue raked again for a cheaper grade for stock and other purposes. Here on the Pacific coast there is no dust and no rain (for many months) to bother, or necessitate coverings, such as must be used on the Atlantic coast, and yet the salt brings a much higher price here, as does almost every thing else.

Just beyond the salt-works we came to the city of South San Diego. It has the bay on one side and the harbor on the other. The streets are not only set with beautiful trees, but they alternate with flowers in bloom; and all that it needs to make it one of the loveliest towns on earth is houses and people. The lots are handsomely staked out with larged painted stakes; the streets are wide and regular; but I saw only one fairly respectable house, with three or four others which were simply wooden sheds. I asked Mr. Harbison how long it would probably take to get these beautiful new towns that are staked out, inhabited. He said it would take more than a generation, surely. I fear some of the poor people here, the poor *suffering* people, do not realize that they have unconsciously acquired a taste for gambling through the real-estate business. Those who succeed in deciding where a future town will be, get rich; but the thousands who do not, lose their little all. But when one buys for the purpose of raising fruits or other produce, and goes in at once, working diligently, he is almost sure to succeed, and gets more real happiness than the man who gets the *occasional* prize in the real-estate lottery. "Wherefore do ye spend money for that which is not bread? and your labor for that which satisfieth not?"

As we reach the main land again, we come to the great hotel. To-day the sun shone, and, besides, I had Jennie's sharp woman's eye to point out many things I did not see the other day when it rained. The brilliant green of the lawns about the hotel is beyond description, and the neatly swept walks of artificial stone, for a contrast to the flowers and shrubbery, bring exclamations of surprise. Peter Henderson's floral greenhouses in New York have nothing to compare with outdoor gardens right in the winter time. The spacious court in the middle of the hotel is a little paradise of wonderful exotic flowers. The display of native flowers from the desert, especially the cacti, are very fine. A plant much used for a border along the walks seems half way between cactus and moss. It looks like moss on a very large scale, for the leaves are almost as large as a short lead-pencil, and the blossom is much like a beautiful chrysanthemum. It grows wild; few greenhouse flowers are handsomer. Trumpet honeysuckle, with flowers of immense size, hang in beautiful festoons. One thing that especially added beauty to the place was, that careful gardeners were constantly removing every flower or plant just as soon as it became old or unsightly.

On our return from Mr. Harbison's ranch we visited Old Mission Valley, and drove up by the ruins of the old mission and fort. The walls are sun-baked brick, so the rains of over 100 years have crumbled them down; but even now some are over 4 feet through. Some of the rude architecture is still quite handsome. The iron bars across the dungeon windows still remain. Near by are trees of the date palm, 115 years old, and 40 or 50 feet high, and 1½ feet through. The top is ornamented by long swordlike spines, or leaves.

By a mistake in the time the train started this morning, I am sent back to Los Angeles by another route, which cost me $2.00 more; but it has given *ten* dollars' worth of pleasant surprises. One was going through the valley of Riverside, Cal.; and another was going through winter on the hills, with snow in sight all around us, and finding summer time with beautiful gardens in the valley an hour later. I have just found out how mountains produce clouds. Their tops are so cold (snow-capped, some of them) that, as the warm air from the valleys strikes them, it is cooled off and must let go its moisture, and this is why the clouds are hovering over the mountain-peaks. San Bernardino, where we are stopping now, seems a little more brisk and lively than some of the California towns. Irrigation is the great business everywhere. Good-sized mountain streams are captured and carried miles in flumes, and the desert is deluged until it blossoms as the rose. A field of alfalfa, illumined by the rays of the setting sun, is just now, after our recent rains, a most beautiful sight. The people here have a knack that I do not understand, of planting orange and other trees with such perfect accuracy that they range just as straight as a string, in a dozen or so different angles. As the cars whirl rapidly along, the angle is constantly changing, but they are straight lines every time. Can any of our readers tell us how it is done?

We are now near Minersville; the train has been running about half a mile from a range of mountains running east and west. The foot of the mountains slopes toward the south, and therefore toward the train. Well, for miles we have had on this slope the most beautiful gardens imaginable, each owner seeming to vie with his neighbor as to whose shall be most attractive.

I have as yet said but little in regard to the eucalyptus, or blue-gum tree. It is planted here as an ornamental tree, and because it grows so fast; also on account of the exquisite perfume it sends out. As you go along in a city, you begin wondering what gives you such a pleasant thrill; then you perceive it is the perfumed air, and presently a blue-gum tree with its handsome rank foliage comes into view. It is planted largely as a future supply of fuel, and Mr. Harbison showed us some 8 years old, from 75 to 80 feet in length, and over a foot through. They had just cut down one of the group, and measured it. Trees 6 inches tall will often grow 10 feet the first season.

We are now in the city of Pasadena, the only large city where there are no saloons—a lady says right here I am mistaken, for Riverside is also an anti-saloon town.

Thanksgiving Day.—I am back again at friend Woodberry's. The first thing I saw this morning to usher in the day was a gaudy hummingbird on the flowers around the door. During my absence the hills that were so sear and brown have turned to a beautiful green, under the influence of the rain. Barley and alfalfa are the principal sources of the green. Friend W. sold $30.00 worth of strawberries, and sold his turkeys for 20 cts. per pound, live weight, and the old hen hatched her chickens, all of which happened while I was away. Although chickens can be hatched all winter, without any care at all, the price of poultry and eggs is away up. Strawberries are, in San Diego, 25 cts. wholesale and 35 cts. retail, and not nearly as fine as Mr. Woodberry's. His Cuthbert raspberries are equal in size and flavor to any I ever saw. I have found the apples and all other fruits fully equal in every respect to our fruits in the East.

We have just passed through a tunnel in the mountain, 1½ miles in length. It is just before we reach Newhall. Near by we see an oil-well, with tanks of oil loaded on the cars.

There are some very nice new fruits here, that we know little or nothing of in the East. Japanese persimmons are very plentiful, but they must be fully ripe to be good. Guavas, especially the strawberry variety, are delicious. They grow on a shrub, something the size and shape of a dewberry. Pomegranates are rather nice, but not equal to the guavas. Olives are a great staple, for oil and for food, but they must be pickled to be eaten, and even then no one likes them until he acquires a taste for them. They are said to be very nourishing, because they are so rich in oil. Last, but not least, the ever-present prickly-pear cactus produces a most luscious fruit, if you take it on a fork and pare it with a knife, so as not to get the prickers in your mouth or fingers. The children understand it to perfection. The prickly pear in California often grows higher than the tops of the fences.

At Santa Paula, where we stop for dinner, the scheme of making travelers pay 75 cts. a meal seems to be broken; for a very respectable hotel, right beside the railroad eating-house, proclaims in letters a foot long, "Meals, 25 cents." A man also proclaims it as the passengers alight. The 25-cent house carries nearly all the crowd. California people at large are not at present prepared to pay 75 cts. a meal. I omitted to say that, at the Dairy in San Diego, they furnish a very nice milk toast for only 10 cts. The waiter takes three slices of bread from the little table where you sit down. They are toasted in a twinkling, well buttered, then each slice is cut in two diagonally. This makes six 3-cornered pieces, which are arranged like a bouquet (pardon the illustration), in a good-sized bowl, then hot milk, from a silver-plated urn, is drawn on until the bowl is full, and you have an excellent supper, both food and drink, for only 10 cts. And, mind you, they do this when butter and milk cost nearly *twice* what they do east. I feel a great deal better after such a supper than when I have eaten a 75-cent one, and I have tried both kinds *a good many times.*

Nov. 30.—Here we are at San Buenaventura, the home of R. Wilkin, the place he selected as his future home for the culture of bees and honey. I have really been out fishing in the ocean, while watching for the sun to rise. I caught *one fish*, and had it for my breakfast. To-day we have had a long ride through the mountains to many mountain apiaries, and finally to the Ojai hot springs. On the way we saw bitumen, or mineral tar, oozing out of the mountain-sides, and hardening in the wind, until it looks as one might suppose lava to look. It will, when hard, hold up a horse, and, in fact, it is largely used for making bitumen pavements. Mr. Mercer, who drove the team, tells us he has a lot of it he drew home when returning from his apiary, and that it makes excellent fuel when used with a little wood. Mrs. Mercer, who took the trip with us, and who, by the way, is a bee-keeper, as well as her husband, says it burns a long while, and in a grate or fire-place it lights the whole room. I broke off hard chunks and chewed them, and it tastes like Huber's "black jack" gum. Any quantity of it is to be found at many spots in the mountains. Ventura Co. also furnishes a great quantity of dark lubricating oil, which is carried in large pipes as much as 40 or 50 miles, to this place, when it runs into immense tanks, and is then loaded on the cars, or on to vessels on the ocean, to be carried to any part of the world. At one time one of the pipes bursted; a quantity ran out on the ground in puddles which anybody was allowed to get who wanted it. Friend Wilkin filled one of his large honey-tanks, and now he uses it for a novel sort of fire-kindler. Just fill a large tin box or pail with sawdust, and saturate it with oil, and you have something to start the fire with, that is cheap, handy, and safe. If the fire is slow, with the shovel just sift on a sprinkling of this sawdust, and *any kind* of wood or coal will start to going strong at once. The crude oil costs only about 5 cents per gallon.

Continued Jan. 1st.

GLEANINGS IN BEE CULTURE.

Published Semi-Monthly.

A. I. ROOT,
EDITOR AND PUBLISHER,
MEDINA, OHIO.

TERMS: $1.00 PER YEAR, POSTPAID.

For Clubbing Rates, See First Page of Reading Matter.

MEDINA, DEC. 15, 1888.

Blessed are ye that hunger now; for ye shall be filled. Blessed are ye that weep now; for ye shall laugh. LUKE 6:21

WHAT do you think of the A B C form of Biographical Sketches in this issue?

THE volume of GLEANINGS for 1888 numbers over 1000 pages. Without the usual supplementary matter there would be a little over 800 pages.

RENEW.

BY referring to your journal wrapper, many of you will find that your subscription expires with the present issue. We trust those of you who propose to remain with us will renew promptly. The longer you put it off, the easier it is to put it off.

THE QUEEN-BREEDER'S JOURNAL.

THIS is the title of a new monthly bee-paper published by E. L. Pratt, Marlboro, Mass. Volume I., No. 1, has just come to hand. In material and make-up it is creditable, and queen-rearers will no doubt find it to their advantage to subscribe. Price 50 cents per year. It can be obtained of the address as above.

THE YORK STATE BEE-KEEPERS' CONVENTION.

A NEATLY printed programme of the 20th Annual Convention of the New York State Bee-keepers' Association has come to hand. The convention met in Syracuse the 11th, 12th, and 13th of this month. In consequence of the absence of the senior editor, we regret to say that the Home of the Honey-Bees will not be represented at that convention as usual.

THE A B C AND ITS IMPROVEMENTS.

HERE is what Chas. Dadant says of our book:

> I have been through your latest edition of the A B C, and marvel at the improvements that you have introduced. Yet its heading does not agree with the contents, for every one of us old bee-keepers can find in them something to learn.
>
> Hamilton, Ill., Dec. 4, 1888. CHAS. DADANT.

Thanks, friend D. We have not only tried to make it the *A B C* but the *X Y Z* of the subject—C?

LANGSTROTH ON THE HIVE AND HONEY-BEE, REVISED.

WE are advised that this new work will be out in a few days. A great deal of painstaking care has been bestowed on it. We have already seen some of the advance proof-sheets; and if we can judge any thing from these the work will be fully up to the standard of the original, which was very high. The portrait of A. I. Root, shown elsewhere, is a sample of one of the cuts, executed in the highest art of wood engraving. The work will also be translated by friend Dadant into his native language, the French.

THIS WORLD'S AFFLICTIONS.

WE are sorry to learn that Dr. C. C. Miller, our esteemed correspondent, has lost another of his near relatives, this time his brother-in-law, D. N. Jones, of Pueblo, Col. In a letter from friend Miller, dated from Kansas City, Dec. 11th, on his way thither, he informs us that this makes five of his relatives who have gone to the other shore within ten months. Truly, friend Miller seems to have had his share of this world's afflictions.

CELLAR WINTERING IN ENGLAND.

THE editor of the *British Bee Journal* says cellar wintering is not much practiced in England; the reason for which is, that the hives are of so many different patterns, and "too large and awkward to admit of ready handling." The climate on the isle is much more mild than in this country; but inasmuch as it is variable, he thinks that cellaring might be followed to advantage. He himself is now experimenting with some forty colonies, placed in a commodious cellar.

PRICE LISTS PRINTED AT THIS OFFICE.

AT this season of the year it is now high time that supply-dealers get out their price lists ready for next season's trade. We have already printed a 54-page price list for J. M. Jenkins, Wetumpka, Ala. We are glad to know that friend Jenkins' trade is increasing, and that another large installment of price lists will be necessary. For C. M. Goodspeed, Thorn Hill, N. Y., we have printed a 20-page—large size—club list of the leading papers and magazines. Friend Goodspeed also advertises Italian bees and queens. His list of periodicals is very complete. Friend G. gives very low clubbing rates. We have also printed a 16-page list of Italian bees for R. H. Campbell, Madison, Ga. Price lists can be obtained of the parties above given.

THE NOTES AND QUERIES DEPARTMENT.

SOME of the most valuable portions of any journal or magazine are the departments of short items, short questions, and short answers. These, as a general thing, contain a good deal of meat and very little shuck; they are read quickly, and easily digested. Answers to questions are often delayed because the questions are long drawn out, introduced with a long story, directly or indirectly bearing on the point, and concluded with an apology for intruding on valuable time, etc. To cap the whole it is hitched to business matters, which, of course, must receive attention first. We are glad to answer questions, but the querist will not only favor us but also himself if he will put his question on a *separate slip* of paper, containing his name and address, if accompanied with business matter. Don't make a short story long, but a long story *short*. We therefore solicit short items and questions, boiled down, and written in a plain hand. Fifty words ought to be enough to state the large majority of the questions.

Friend Newman notices our A B C book quite at length in his journal, and a very nice notice he gives it too.

We expected A. I. Root home on the 15th inst., but a letter from him just at hand announces that duties call him to remain longer. He will probably be home on the 22d.

YIELDS OF HONEY IN CALIFORNIA.

On page 971, current issue, is a note from our old friend E. Gallup, the one who chose the dimensions for the frame bearing his name. Instead of comparing amounts by the hundred pounds, he and the other Californians estimate their honey by the *ton*. Truly, that is a great country for honey as well as for fruits.

THE INDEX TO GLEANINGS.

At the close of this volume will be found a very comprehensive index. It is so full and complete that we feel sure our readers wil find it more valuable than usual for reference. You will see that the index of illustrations is also large, which, of course, means that the journal has been more fully illustrated during the past year.

AMATEUR PHOTOGRAPHY.

Yes, that is what your humble servant Ernest dabbles in occasionally during his spare moments. What has it got to do with bees? It has this to do with it. Hives and other appurtenances—yes, bees on the wing—can be photographed in the twinkling of an eye. Our readers are thus enabled to have the benefit of some of the scenes pertaining to our pursuit which they probably would not have otherwise. Several of the pictures that have apappeared in Gleanings during the past six months have been from amateur photographs. The one shown on page 959 is a direct reproduction. We hope to show you more of the same kind in the future.

THE NON-REVERSING EXTRACTOR.

In a letter to Dr. C. C. Miller, Mr. Thomas William Cowan, editor of the *British Bee Journal*, in speaking of the extractor which did not require a reversal of the combs in order to throw out the honey (see page 773), says: "It is exactly the same as I had; and after some time I gave it up, because with tender combs the speed necessary is liable to crush them. The honey came out, and with old combs it did very well. With wired frames it would answer." It seems from the above that such an extractor is a success so far as throwing out the honey is concerned. Now, if we can make the basket strong enough, and if, too, we use wired or old combs, according to Mr. Cowan's experiments the thing will work. We wish our readers to understand that we have not yet abandoned the idea. When honey comes in next season we wish to test it further, and we hope those of our subscribers who are so situated as to do so will test the matter likewise. If it can be made a success, it is too good a thing to lose simply because of imperfect trials.

THE REVIEW, HOME-MADE.

The last issue of the *Review* contains a short history of itself. In this history is incorporated a very correct and natural likeness of W. Z. himself, an Ives reproduction. The editor points out some of the difficulties in starting the new paper, and tells how he finally mastered the situation. He says, "Sleepless nights and anxious days were spent in thinking, and finally it was decided that the *Review* should be home-made." The necessary printers' material was purchased, and our friend, without previous experience as a printer, set out to set up the type and make up the forms for the magazine. He says, "It was difficult and discouraging at first. Type that went to its place so quickly and neatly in professional fingers, seemed to have become perfectly helpless — couldn't even stand alone." Any printer can easily appreciate brother H.'s difficulties. That type which, ordinarily, behaved itself, would not, under inexperienced hands, stand alone, was not to be wondered at. The appearance of the *Review* savors nothing of an amateur printer. The type-setting and make-up bear every evidence of professional skill. We extend our congratulations to the editor, and wish him success.

KIND WORDS FROM OUR CUSTOMERS.

The seed that I got of you last spring all came up. My buckwheat did very well this year.
Mechanicsburgh, O. J. C. Allison.

I received the type-writer in good shape, and am pleased with it. It is a daisy. Thanks for prompt attention. William Sumpter.
Unadilla, Nebraska.

I am in receipt of one of your A B C books, of the 37th thousand, for which please accept my thanks. I consider it very nice. E. France.
Platteville, Wis.

I enjoy reading Gleanings much. I learn something new and something good in every journal, for old and young. May God bless you in the good work. Albert Carter.
Carrollton, Mo.

I am much pleased with Household Department. Your articles are timely, and to the point. You will hear from me again soon.
Portland, Tenn. Dr. W. P. Moore.

Don't stop my paper until I tell you to. Do you hear? When you want money, send me a bill and I will pay the same. I should be lost without Gleanings. J. D. Brands.
Warrington, N. Y.

[We "hear," and will try to obey instructions.]

MRS. CHADDOCK'S KIND WORD FOR THE A B C OF BEE-CULTURE.

Mr. Ernest Root:—I want to thank you for a complimentary copy of the A B C. It is a very nice book, well made, and full of good things. I do not see how your pa can afford to make it so good for the price. Mahala B. Chaddock.
Vermont, Ill., Nov. 22, 1888.

THE NEW A B C, AND MRS. HARRISON'S OPINION OF IT.

The new A B C of Bee Culture is just the thing for grandpa as well as the boys and girls. I once sent a copy of this work to a nephew who was about 15 years old, and another aunt sent him a fascinating story-book. I learned since he read the A B C the more. I spent a delightful evening in looking at the familiar faces of my friends at the back of the volume. Mrs. L. Harrison.
Peoria, Ill.

MRS. AXTELL'S KIND WORDS FOR THE A B C.

The beautiful bee-book (the A B C) is received, for which please accept our heartiest thanks. It is so beautiful in finish I shall be proud to have it upon my parlor table. You have honored us above what we have merited by placing us among the successful ones in the book, for we feel we are but learners yet. There are others I am sure who deserve the place much more than we.
Mr. and Mrs. L. C. Axtell.
Roseville, Ill., Nov. 26, 1888.

INDEX TO
GLEANINGS IN BEE CULTURE,
FOR THE YEAR 1888.

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NOTE. The numbering of the pages from 699 to 744 was duplicated by mistake. The second series is indicated by * just before the numeral, and is found in Sept. 15th issue. This applies to all the indexes.

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